Textile World

ESTABLISHED 1868

CONTENTS AUGUST 1932

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TEXTILE WORLD

(Formerly *Textile World Journal*) with which are combined *Textiles, Possell's Textile Journal* and *Textile Advance News.* Published monthly, United States and Possessions, $3 per year; Canada (including Canadian duty), $3.50; all other countries, $5, U. S. currency, or 25 shillings. Single copy, 35 cents, excepting special issues.

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August, 1932

Textile World

Vol. 82, No. 2

PUBLISHED BY BRAGDON, LORD & NAGLE CO.
DIVISION OF McGRAW-HILL PUBLISHING COMPANY, INC.

Editor: DOUGLAS G. WOOLF

At Least One Can Plan

"SURE, we need to modernize. No, we're not doing it. We have a good reason for not doing so. But we're making plans to start as soon as we can. Those plans are down on paper in the form of a definite program of plant improvement. When the time is propitious, we'll be all ready to shoot."

That statement, we submit, reflects one of the most encouraging trends in textiles today. And it *is* a trend. The above is not an isolated example. Many firms are doing likewise.

Engineering companies have told us that the bulk of their textile business in recent months has consisted of engineering surveys, or "mill audits," for firms who are not yet ready to invest in needed improvements. But at least they'll be ready when the time comes.

▼

Elsewhere in this issue appears an article outlining the scope of such surveys. Briefly, they embrace a comprehensive study of the machinery organization and labor organization of the company; the immediate effecting of such changes as can be made within the limits of the company's current financial position; and the laying out of a definite program for the next several years.

Too often, in the past, modernization has been a haphazard enterprise. A new machine was bought when it seemed impossible to compete any longer against mills where this equipment was installed. A new roof was constructed over a weave shed when the old one was just about to collapse. Such forced improvements entailed serious interruption of production—often at a time when the mill was being pressed for deliveries; and were made so hastily that the change was not oriented to the operation of the plant as a whole.

Those mills which have laid out programs of improvement over a period of years have been rare exceptions. That is why the new trend mentioned above is so encouraging.

▼

There are indications at present that plans are being developed whereby Federal encouragement to bankers to finance modernization may be forthcoming. If properly safeguarded so as to insure the restriction of such aid to those companies whose management methods deserve it, this will be another constructive step toward economic rehabilitation.

But meanwhile, whether or not a textile manufacturer has the cash or the credit to make needed changes, he at least can take stock and plan today for tomorrow's housecleaning. Practically all he requires for this step are courage and foresight.

The Editor Says:

DEPRESSIONS are not ended by news. As we scanned some of the "hopeful" items the daily press has been playing up recently, we wondered if those referring to other industries were as "thin" as the textile news. A mill resumes operations after vacation; of course it does—eventually. A company goes to four days instead of three; many should go to two instead of three. . . . Nevertheless, we have no desire to be captious. The last few weeks have brought some signs which can be called hopeful without the quotation marks. We have a hunch that these will multiply between now and the end of the year. All we hope is that every textile manufacturer will allow such news to enthuse him to the point where he'll go after every bit of business he can accept at a profit—and that he will refuse to be impressed beyond that point.

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WALL STREET has a five-million share day. Cotton advances about a cent a pound in one day. Within a few weeks stock prices make up a good deal of the difference between their high and low for the year. It almost seems like old times. . . . Certainly, no one should begrudge the American people a little joy. They've had it coming to them. But it is worth while pointing out that nothing actually happened to justify these advances. The companies represented by the various shares were not really a better "buy" on Aug. 8 than on July 8. But people's ideas had changed. After going through months of believing that everything saleable was expensive at half the quoted price, they began to realize that maybe it was cheap at twice the price. . . . All of this is entirely sound. We had to have a psychological reaction before we could have an actual one. All we hope is that we keep our psychological shirt on.

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A GROUP of hosiery manufacturers strike in North Carolina. A few thousand unemployed join in. Power lines are shut off. What does it all mean? . . . A lot. It means that wage chiseling has gone the limit. Not, as some news writers have tried to make out, merely in the South. This might have happened in Rhode Island or in Pennsylvania or in any other eastern or northern State. The South has no monopoly on it. Furthermore, the hosiery manufacturers affected have shown a willingness to treat with their striking employees in a sympathetic and fair attitude. . . . It means, actually, that every time a textile manufacturer accepts an order at a loss, he has to try to take it out of his workers; and that, if this process is carried to its logical extreme, it will bring industrial strife at a time when industrial cooperation is most needed.

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WHICH brings us to another thought: One of the unfair situations, magnified by any strike against lower wages, is that labor can agree not to work for less than a minimum wage, but manufacturers cannot (legally) agree not to sell their products below a minimum price based upon cost of production. If it is within the scope of the law for workers to join in an agreement not to accept wages below subsistence levels, then it should be equally lawful for manufacturers to agree not to sell their goods below the cost of production, which is equivalent to the "subsistence level" for a manufacturing corporation.

❖

IT WON'T be long now. Once let politics assume its rightful place, the question of revision of antiquated anti-trust laws will come to the front again—and be settled. . . . The essence of those laws will always be needed. There will always be those who will try to profit at the expense of the poor, the unintelligent, the downtrodden. But here is the real point: A company which undermines price structures by suicidal price-cutting is acting just as much in restraint of trade as a firm which boosts prices through monopolistic action. In each case the honest manufacturer, dealer, and worker suffer. To us, revision of the anti-trust laws means merely the provision for punitive and preventive action against both types of racketeers.

❖

ENTIRE textile towns are denuded—as by a plague. Great mills are idle. Buildings and machinery go for next to nothing at all. Companies which stood at the top of the list are mere memories now. Most of those which remain can't earn a profit. . . . And yet some people still claim that the law of the survival of the fittest will work out. . . . Poppy-cock. . . . That law had its fullest opportunity in the textile industry for years—and look at that industry now! Anyway, who said it was a law? . . . We don't believe that an association or an institute or a "gentlemen's agreement" can, in itself, bring prosperity. But we know (not merely believe) that vigorous and unanimous prosecution of the coordinated programs attempted by several of the branches of the industry is the only way in which the really "fit" members can ever hope to survive.

Night Work

APPROACHING SHOWDOWN IN COTTON INDUSTRY

IF the move for complete discontinuance of productive night operations in cotton mills for one year beginning Oct. 15 should fail to receive the required support, it would still have served a most useful purpose as a "census" of opinions on the subject.

For years prior to the elimination of night employment of women and minors now in effect, there were as many loose statements made regarding sentiment on the night work question as there have been, nationally, on prohibition sentiment. Even since the industry declared itself so overwhelmingly on the "women and minors" proposal, it has been stated repeatedly that this stand did not reflect accurately the feeling on the broader proposition—that of complete elimination of night work.

Consequently, there is wide interest in reaction to the Cotton-Textile Institute's latest move, announced just as our last issue went to press. That move is supported by a similar recommendation advanced by the board of government of the American Cotton Manufacturers Association. Mills are being canvassed to determine their individual attitudes; it is still too early to indicate the probable trend of the result.

It is understood that, to become effective, the proposal must have 90% support. It is further understood that the setting of so high a bogey was induced by the feeling, on the part of many, that any more than 10% of non-conformists could nullify the efforts of the cooperating majority.

There is also a group which believes that there should be permanent discontinuance of night work, or none at all; that elimination for one year is too limited a step. The obvious answer to this objection is that progress is made slowly. Elimination of night employment of women and minors was endorsed at a time when a proposal to discontinue night work completely would have been overwhelmingly defeated. The fact that last month directors of the Institute representing 9,000,000 spindles have supported the latest recommendation marks real progress. It is believed that those who favor complete and permanent elimination should recognize this progress and accept it as a step in the right direction.

Another important phase of the latest move is that the proposed policy applies to productive machinery only, i. e., spindles in spinning mills and looms in weaving mills. This meets the objections of manufacturers whose mills are "unbalanced." For example, a mill may have to operate its spinning equipment day and night in order to supply enough yarn for its looms on day-time weaving only. In this case, the restriction would not apply to the spinning.

◆ *To work or not to work—at night—that is the question. Cotton manufacturers have decided to have a showdown.*

We happen to believe that night work is largely undesirable and unnecessary in any industry. We must have night watchmen —and men to run our transportation systems at night —and milk men—and speak-easy and night club proprietors. But, we firmly believe, we don't have to make cotton yarns and worsteds and hosiery at night. Particularly is this true since we have enough equipment to make, on day shift, more of any of these products than anyone seems to want to buy at present—or will probably want to buy for some time to come.

The cotton manufacturers have set a difficult bogey for themselves—90%. But if they don't make it, we hope that among the "nays" will not be counted those who have been shouting for total elimination of night work—or nothing at all.—Editor.

Reaction in the South

As representative of comment in the South, are cited the following:

"There is no justification for any textile plant operating at night at the present time when it is impossible to market normal daytime production so as to show a profit," declared A. G. Myers, president, Textiles-Inc., Gastonia, N. C., in a statement to the southern editor of TEXTILE WORLD. "I am heartily in accord with the efforts of the Cotton-Textile Institute toward the elimination of night work for a period of one year, or longer if necessary, to place the industry on a more stable basis, and have so advised the Institute.

"Technically, the industry is in the best position it has occupied for a number of years. There are some four million fewer spindles in place today than a few years back, with an increased population, but as long as those in charge continue to overproduce and to accept the buyer's offer rather than stand up and demand a price that will show a reasonable return on the investment, we can expect nothing but a buyer's market. It is economically if not morally wrong to operate mills at night in such times as we are passing through and, if it were possible to enact Federal legislation that would be constitutional to prohibit any and all operations of mills at night, I would be strongly in favor of it as a means of bringing about a uniform basis of operation."

T. Scott Roberts, president of Adelaide Mills, Anniston, Ala., and president of the Alabama Cotton Manufacturers Association, although favoring any propsal for elimination of night operations states that he would prefer permanent abolition of night shift by law.

A Merger Plan

PROPOSED AS STABILIZER IN COTTON GOODS DISTRIBUTION

By Floyd W. Jefferson
Iselin-Jefferson Co., New York

◆ *Too much of the usual discussion of textile mergers deals with the potential results rather than with the way in which such combinations might be effected. Consequently, the accompanying article by Mr. Jefferson appeals to us because he talks at his subject, rather than around it. He presents a definite plan for a merger of cotton goods selling agencies, and sets down specific fundamental conditions.*

By so doing, he has proposed a solution of the more controversial problems which usually arise as obstacles to mergers. For example, his program provides for joint ownership by mills and selling agencies. This is an interesting sequel to the interview with B. B. Gossett in last month's issue of TEXTILE WORLD *in which Mr. Gossett urged a relationship between mills and their selling houses which would be in "the nature of a partnership."*

Also, Mr. Jefferson proposes a complete separation of the financial and distribution functions.

In his last paragraph, Mr. Jefferson indicates the way in which such a move might be started when he says: "It is possible that a start in the right direction may be made by two or three progressive houses joining forces." It seems to us that an immediate step might be an informal conference of outstanding manufacturers and selling agents. Such a meeting, held at the call of an individual or group of individuals, would commit no one in advance to any action; it would however provide a medium for frank discussion of this vital matter.—EDITOR.

THE thought has been frequently expressed that a well conceived merger of cotton goods selling agencies, under the leadership of an able executive, supported by competent advisors chosen from manufacturers and merchants, would prove to be a stabilizing influence in the textile industry.

A single house regulating the distribution of a large percentage of certain staple constructions could control production, and could name prices on standard cloths which would yield a fair margin to the manufacturer.

To accomplish a merger of this kind, we should approach the proposition from the standpoint of preserving the capital investment as well as the good will of the participating houses, but with the further provision that each corporation or partnership entering the merger must liquidate its individual indebtedness, so that the new company may be free of all debt.

We also start with the premise that the mills for which each selling house has the agency are entitled to part ownership in the new selling corporation. Therefore we are suggesting that the stock of the proposed company which we will call the United States Textile Corporation shall be allotted to the merging selling agencies and their mills, and to the executive group of the new company as follows: That two-fifths of the stock shall be allotted to the merging selling houses; that two-fifths be allotted to the mills whose accounts are handled through the merging agencies; and that one-fifth be allotted to the executives who shall be selected to operate the company.

The stock should be offered to the participating groups at a low price as the working capital under the factoring plan which we propose need not be large.

We would then start with a cooperative selling company, a corporation with sufficient but nominal capital, in which the stockholders would be the merging commission houses, the mills which they represent, and the executives chosen to guide the destinies of the company.

There should be an understanding that each mill which is given the privilege of subscribing would obligate itself to name the United States Textile Corporation as its selling agent for an agreed period, and in case of withdrawal within three years, to offer its stock to the corporation at original purchase price.

The selling house groups and their mills having agreed to merge according to the formula suggested above, the next step would be the selection of a factoring unit to assume those functions that properly belong to a capitalistic group rather than to a selling organization.

In almost every instance where a New York cotton goods selling agency has experienced trouble, the trail leads back to mill involvements of one kind or another.

These practices are no longer countenanced or condoned by the banking fraternity, and it is fast becoming realized that the New York selling agency or so-called commission house should be placed in a position to function purely and simply as a sales agency. It is quite possible to separate the banking, factoring, mill advance and credit checking divisions.

Sales agency difficulties have invariably been brought about through the commission house getting out of its proper sphere as cloth distributors:

1. Through purchase of mill corporation stocks;
2. Through unsecured loans for mill building or expansion;
3. Through loans to mill corporation executives to enable them to acquire mill stocks;
4. Through merchandise advances inadequately margined;
5. Through commission house endorsement of mill paper;
6. Through unusually large credit losses.

These troubles can be avoided by making a sharp line of demarcation between the financial and cloth distribution divisions of the industry.

The chief executives of a sales agency should apply themselves exclusively to merchandising. Under present conditions, the best brains in many organizations are devoting the major portion of their time consulting

bankers regarding the financial condition of their own company, or of their customers, or consigners.

A large, well-financed factoring company is the proper agency to assume all burdens of that character. The factoring charge, which must not be out of proportion to the service rendered, is insurance not only against actual credit losses, but against that type of business folly which has brought about the downfall of so many selling organizations.

The United States Textile Corporation would be comprised of the best part of existing sales organizations. It would be a central unit with divisions of the company marketing specific types of merchandise of kindred character. There would be a prompt readjustment and realignment of distributive forces, and mills would be grouped in departments under men qualified to carry out sound merchandising policies.

The divisions of the United States Textile Corporation might be as follows: (1) Print cloth division; (2) Sheeting and drill division; (3) Mechanical trade division; (4) Woven colored goods division; (5) Fine goods, rayon and silk division; (6) Package goods division; (7) Converted fabrics division; (8) Export division.

These departments would be very quickly recognized as headquarters and quotations emanating from such a source would have a tremendous bearing upon the price of all cotton products.

> "This is an ideal time to set up a comprehensive distributing agency for cotton textiles, and a prompt move in this direction will prove the quickest and best way to change the present chaotic conditions. —*Floyd W. Jefferson.*"

The sales agency would be primarily a cooperative service corporation for the mills.

These thoughts have been endorsed by bankers, merchants and cotton mill executives, but no definite or constructive action has ever been taken. This is an ideal time to set up a comprehensive distributing agency for cotton textiles, and a prompt move will prove the quickest and best way to change the present chaotic conditions.

An able executive, preferably not from any existing group, can be found, and around such a man the organization should be built.

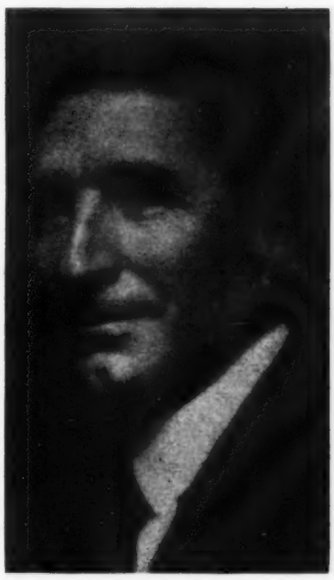
The plan does not require the raising of capital through bankers or public financing. Sufficient capital is available through the adoption of the factoring plan.

The question of personnel will have to be met but this is true in any merger and as each house and each individual can be measured by the same yardstick, it is certain that the steering group can meet and overcome that difficulty. If there are houses where the personnel element cannot be adjusted to the new order, such organizations need not become a part of the United States Textile Corporation, and they can continue as independents. These independent houses, however, should welcome the formation of the dominating group or groups, as they should be able to recognize the vast amount of good which would result from market stabilization growing out of this procedure.

There are in existence at present, mill-owned commission houses as well as commission houses that control their mills. These are more or less self-contained units and the interests of manufacturer and seller are so well co-ordinated that it is unnecessary to suggest a change.

Organizations of those types would continue to function as individual groups but such companies would gladly co-operate with a co-ordinated service corporation comprised of mill accounts which are now scattered throughout the Worth Street district. The concentration of this selling in one well-organized group would be most welcome.

The economies to be effected through the formation of the United States Textile Corporation are obvious. It will suffice to mention a few items where there is now a multiplication of expenses: executives, sales managers, rentals, out-of-town offices, travelling salesmen, New York sales force, credit departments, clerical, telephone, telegraph and cable. The much debated questions of rate of commission and advertising expenditure would soon be solved; at present mills and selling agencies have reached an impasse on these points.



Mills say that their function is manufacturing and that all expense pertaining to selling and distribution should be borne by the commission houses. On the other hand, the selling agencies contend that revenue from commissions is not sufficient to cover expenses, and there has been a decided tendency to curtail territorial coverage at a time when additional sales effort is more than ever necessary. The same reasoning on both sides has all but eliminated cotton textile advertising. Under the proposed plan, an adequate amount would be allowed by mills for sales promotion.

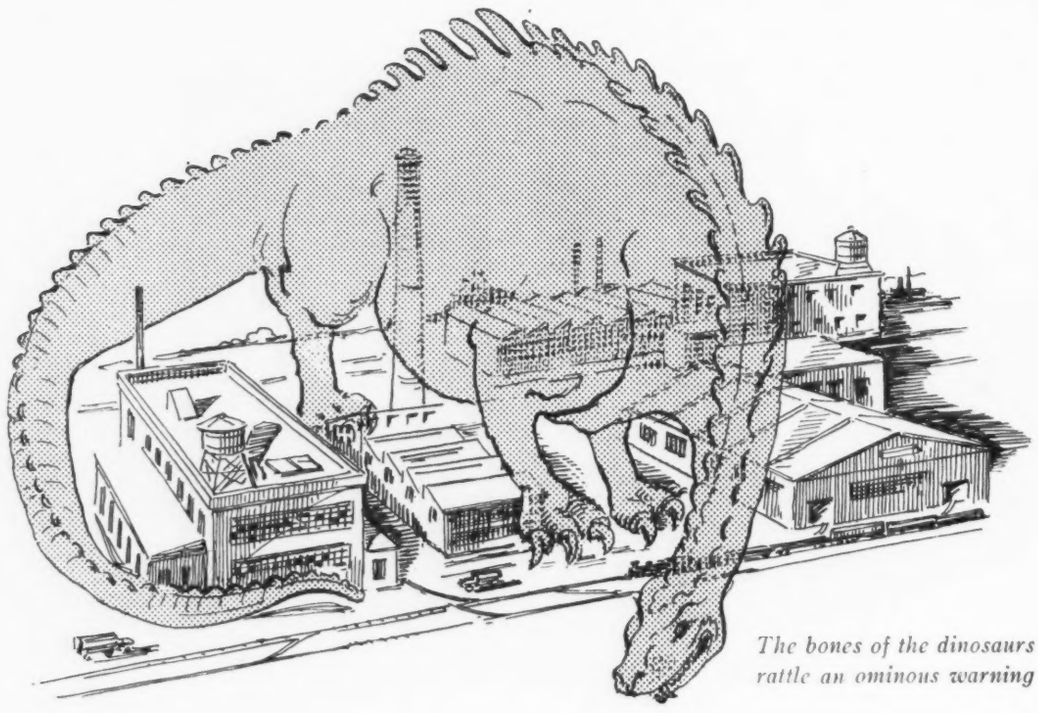
Rates would be adjusted in proportion to expense of distribution. The cost of selling print cloths sold through brokers to the New York converting trade has little relation to the cost of selling sheets, bedspreads or towels. Furthermore, the cost of selling to large groups in New York is not so great as selling a distributor in Seattle, yet both outlets are important to the mill.

The tremendous savings which could be made through cooperative selling would be reflected in commission rates, so that wider and better distribution could be accomplished at costs somewhat in line with present expense, although mills should recognize that commission rates should fluctuate in inverse ratio to price of cloth.

It is possible that a start in the right direction may be made by two or three progressive houses joining forces. If any such pioneers would leave the way clear for others to join on the same terms and conditions as the originators of the plan, it is probable that the movement would result in the formation of the largest and most important cloth distributing unit in the world, and one that would play a most important part in the stabilization of cotton textiles in the United States.

Engineering Surveys

AID MILLS TO MEET CHANGING CONDITIONS



The bones of the dinosaurs rattle an ominous warning

◆ *Engineering studies and reports on manufacturing efficiency (sometimes called "mill audits") are being made with increasing frequency by textile engineering firms for their clients in various branches of the industry. In this discussion, we are answering some of the questions asked us about the scope, purpose, and value of such studies. While only the type of report prepared by one particular company is considered in this article, the major points and conclusions apply to work done by other firms. The significant fact is that textile engineers are playing an increasingly important part in the rehabilitation of many old or inefficient mills.*—Editor.

MUSEUMS exhibit the skeletons of strange animals that roamed the earth in prehistoric times but, failing to adjust their modes of living to meet conditions in a changing environment, passed out of existence. Thus we can understand why the dinosaurs, though possessing strong bodies and powerful legs, became extinct many centuries before the dawn of man-made history.

Conditions in textile manufacturing are changing. Customs and practices of long standing are being thrown overboard as manufacturers are faced with gradually shrinking profit margins, with lower competitive prices that are based upon economies in manufacturing costs, and with new developments in the technique of distribution. Many executives, who have not awakened to these changes, but are still operating under a set of rules that became obsolete several years ago, are continually losing money for their stockholders, and saying, "It can't be helped!" While these executives are awaiting a return of the "good old days" their companies face almost certain extinction, financially, in a rapidly changing environment.

An increasing number of alert and aggressive manufacturers have determined to adjust their manufacturing and sales methods. They recognize that obsolete methods must be abandoned without further delay. This tendency on the part of manufacturers in various divisions of the textile industry has been more noticeable in recent months, according to J. E. Sirrine & Co., of Greenville, S. C. This engineering organization has received an increasing number of requests from its textile clients for studies and reports on manufacturing efficiency. This type of manufacturing report, the purpose of which is to show the mill what it *must* do in order to scale down its costs to a competitive basis, includes the following features:

1. An analysis of the physical properties of the company, with a complete survey of the machinery organization, both as to the correctness of the organi-

zation itself and as to the physical condition of the machinery.

2. A plan to follow in making future machinery changes.

3. A labor budget based upon a careful study of the allocation of tasks in the plant.

An analysis of the physical property of the mill may show that an investment in some new equipment is desirable or even necessary. The study might reveal conditions making such an expenditure essential even in times of economic stress such as the present. In many cases, however, changes in the machinery organization, together with other prescribed economies, will be sufficient to place the plant on a favorable competitive basis.

In working out the machinery organization of the average cotton spinning and weaving mill, after a thorough check of all speeds, drafts, and twists, changes may be put into effect with the result that less labor is required. The engineering organization considers every factor entering into the mill's manufacturing costs. This includes a study of power costs, the efficiency of power distribution through the mill, humidity conditions, boilers, steam utilization, and many other points where potential savings may exist.

A plan to be followed in future machinery installations, subject to modifications that may become necessary as the result of new developments in the art of manufacturing, furnishes the mill with a carefully prepared program of machinery replacement. This may involve, for example, the expenditure of $200,000 in a particular mill over a period of several years. The report might recommend, however, that $15,000 of this total be invested in new machinery immediately; but, at any rate, the manufacturer knows how much to figure on spending during the next few years in order to keep up with the parade.

The program recommended in the engineer's report, with specific reference to the labor budget, usually calls for a reduction in the number of people employed by the mill. One object of this study is to give every employee a full day's work as his regular task and to eliminate all workers who are not absolutely essential. This has come to be regarded as a necessary step and, in the end, a very satisfactory one for the remaining employees. When every operative has a full day's work assigned to him, he feels more confident about the security of his job, and the morale of the organization is strengthened all along the line. [This statement applies to normal conditions; it should not be interpreted as an argument against the practice of spreading employment during an emergency.—*Editor.*]

The engineering firms, perhaps more clearly than any other group connected with textile manufacturing, realize that every effort should be directed toward preventing the industry from sinking into a lower wage class. Stripping the payrolls of unnecessary workers has the tendency of eliminating the temptation of horizontal wage reduction as a means of lowering costs.

The manufacturing report not only indicates where and how production costs can be reduced, but also is valuable in "selling" the idea of drastic economy to everyone connected with the mill. In fact, as several executives have pointed out, this more or less intangible by-product is one of the principal benefits made possible by the manufacturing report. It is necessary of course, at the very outset to convince the mill superintendent that the program recommended is a practical one for his plant. After the operating economies have been demonstrated to his satisfaction, either in his own mill or by the results obtained in some other plant where similar recommendations have been followed, the superintendent invariably becomes an enthusiastic advocate of the whole program.

The engineering firm is equipped with the knowledge resulting from the combined thought and experience of a great many mills. This store of practical information has been accumulated during years of working with hundreds of different manufacturers. Consequently, the engineer can bring to any manufacturer a wealth of experience and knowledge that is not available in the regular operating staff of any single plant.

The object of the manufacturing report, such as that outlined in this article, is three-fold: (1) lower production costs, (2) increased output per day, and (3) better quality of product. A good report should be able to show the mill how to obtain all three results. At least it must be productive to the extent of making possible one of these results.

The engineering organization, instead of submitting the report and then forgetting about it, always stands ready to help the manufacturer should any snags be encountered in the execution of its recommendations. Bringing into the mill an outside, impersonal point of view is always of valuable assistance in finding remedies for old troubles that may have escaped the notice of those in the mill. In critical times, such as those now facing the industry, the employment of an outside engineering organization's talents may result in the salvation of an enterprise from almost certain extinction. Certainly this is no time for assuming a self-satisfied or indifferent attitude; for, whether the majority of manufacturers hear them or not, the bones of the dinosaurs rattle an ominous warning.

"THE ENGINEER can bring to any manufacturer a wealth of experience and knowledge that is not available in the regular operating staff of any single plant."

Aggressive Sales Promotion

FEATURES BRANDS AND MODERNIZED PACKAGES

Fig. 1. Labels for identification of Neisler products. Fig. 2. "kins. At right, advertisement of product. half-dozens. Fig. 3. Self-selling display carton for same napEn Famille" napkins put up attractively in

◆ *Manufacturers selling their goods through commission houses have, in most cases, failed to make provision for adequate advertising and sales promotion. Products for the consumer markets, such as the principal lines made by Neisler Mills, Inc., not only should receive the attention of expert stylists, but also should be advertised and promoted in an intelligent way. The experience of Neisler Mills, Inc., as related in the following staff article, will be of interest to any manufacturer of goods for the retail trade.*

COMMISSION houses have been accused of creating the unsound merchandising situation in cotton goods. This unprofitable state of affairs, according to some critics, is due largely to the selling agent's thirst for sales at any price, disregarding the financial welfare of the mills. It is true that some of this criticism is not without justification, but in the majority of cases the manufacturer himself has failed to accept his share of the responsibilities connected with the selling function of his business. There is need for a closer working arrangement between the mills and their selling agents, and for a more definite understanding of their respective duties and responsibilities.

Neisler Mills, Inc., King's Mountain, N. C., manufacturers of bedspreads, draperies, damasks and allied household fabrics, although marketing their products through a selling agent, have always assumed full responsibility for the styling and pricing of their goods. This company formed a selling connection with Cannon Mills several years ago, and this association has been mutually advantageous, as the selling organization handles a tremendous output of towels and bed sheets. The story of Cannon products and the wide consumer recognition of their brand-name, built up through consistent and intelligently directed advertising, is well known.

Neisler Mills could have followed the path of least resistance and depended entirely upon their selling agents for advice and instructions as to the kind of goods to manufacture. Instead, the mills have undertaken market studies to determine what types of goods offer the greatest possibilities for profit, have employed competent style consultants to develop new fabrics and create original designs, and have assumed responsibility for advertising and sales promotion of Neisler products. One of the first steps was to engage, as merchandising and advertising counsel, the Calvin Stanford Advertising Agency, of Atlanta, Ga., under whose direction various market studies and advertising campaigns have been prepared.

As an initial move in the development of this merchandising and sales promotion program, a thoroughly practical style consultant was employed for the purpose of creating merchandise with a definite style appeal. Instead of copying the designs of other producers and then underselling them, it is the policy of Neisler Mills to develop new designs and to bring out original fabrics. In the styling of new fabrics, the selling agent is, of course, consulted from time to time but the mill has complete jurisdiction in the matter of styling and pricing.

With the exception of goods sold to converters or to

others who purchase in large quantities, using their own brand names, all Neisler products will eventually carry the name, "Margrace," or some other trademark owned by the mill. Fig. 1 shows two labels recently designed for this purpose. One or both of these labels will be attached to the merchandise, depending upon how the goods are put up or packaged. In discussing the problem of packaging, Calvin Stanford, of the Calvin Stanford Advertising Agency, made the following statement:

"To get the merchandise in presentable shape for the market is another important factor—one that is sadly overlooked by too many manufacturers. No matter how attractive the goods are, it is often possible to enhance their beauty and sales value by wrapping or packing in some interesting way."

Demonstrating how this principle works out in actual practice, we shall take, for example, the case of the new Durene table napkin. Inquiry in the market disclosed that the demand for cotton damask napkins had declined considerably in recent years, the cheaper grades of imported linens having largely displaced them in the retail stores. The principal sales appeal of these cheap linen goods, however, was found to be their attractive put-up. Even paper napkins, largely because they are packaged in an interesting way, had cut into the market for cotton napkins.

Further investigation in department stores revealed that the most serious objection to cotton damask napkins was their tendency to shed lint. Obviously, the problem then was to develop a lintless table napkin which could be packaged attractively for counter or table display in retail stores. Experiments finally resulted in a napkin made of natural Durene yarn, which virtually sheds no lint, and is soft, absorbent and lustrous. This napkin is sold under the trade-name of "En Famille" which is suggestive of the use for which the article is intended.

The package in its complete dress, shown in Fig. 2, consists of a container of two-ply board, bright green, with design and lettering in white. The entire package is enclosed in a transparent wrapping material. A self-selling display carton, illustrated in Fig. 3, containing six dozen napkins, is dark green, contrasting with the bright green color of the individual packages.

To assist the selling agent, as well as the jobbers, in marketing "En Famille" napkins, a series of advertisements will be published in selected business papers for an indefinite period. Direct mailing pieces, carrying the names of jobber-distributors, are sent to a large list of well-rated retail dry goods and department stores as another means of acquainting the trade with the details and merchandising possibilities of "En Famille" napkins. The foregoing details have been mentioned to show the careful attention given to the merchandising of each individual Neisler product under the plan adopted by the manufacturer.

The bedspread division of Neisler Mills, being one of the most important departments, naturally receives considerable emphasis from the sales promotion angle. The range of bedspreads, created by Mrs. Anna L. Rogers, a leading style consultant, in designs appropriate for present day market demands, is made in all-cotton constructions, cotton and rayon, and all-rayon. The initial showing of new lines for fall, which was held in the New York show rooms of Cannon Mills, July 6, was heralded by "teaser style" advertisements appearing in the leading dry goods business papers. Direct mail literature is used to supplement business paper advertising on the bedspread lines.

In packing Neisler bedspreads, as in the case of table napkins, artistic and serviceable cartons are used. An example is the folding carton, illustrated in Fig. 4, done in three colors and completely wrapped in Cellophane. Shown in Fig. 5 is one of several novelty set-up boxes intended primarily for gift purposes.

Interesting new patterns in luncheon sets have been developed by the style consultant. The package has been modernized and a carefully planned promotional campaign developed by the advertising agency for this product. It is significant, however, that Neisler Mills, with the aid of their selling agents and merchandising counsel, are developing a broad program of sales promotion on their products in new and interesting packages.

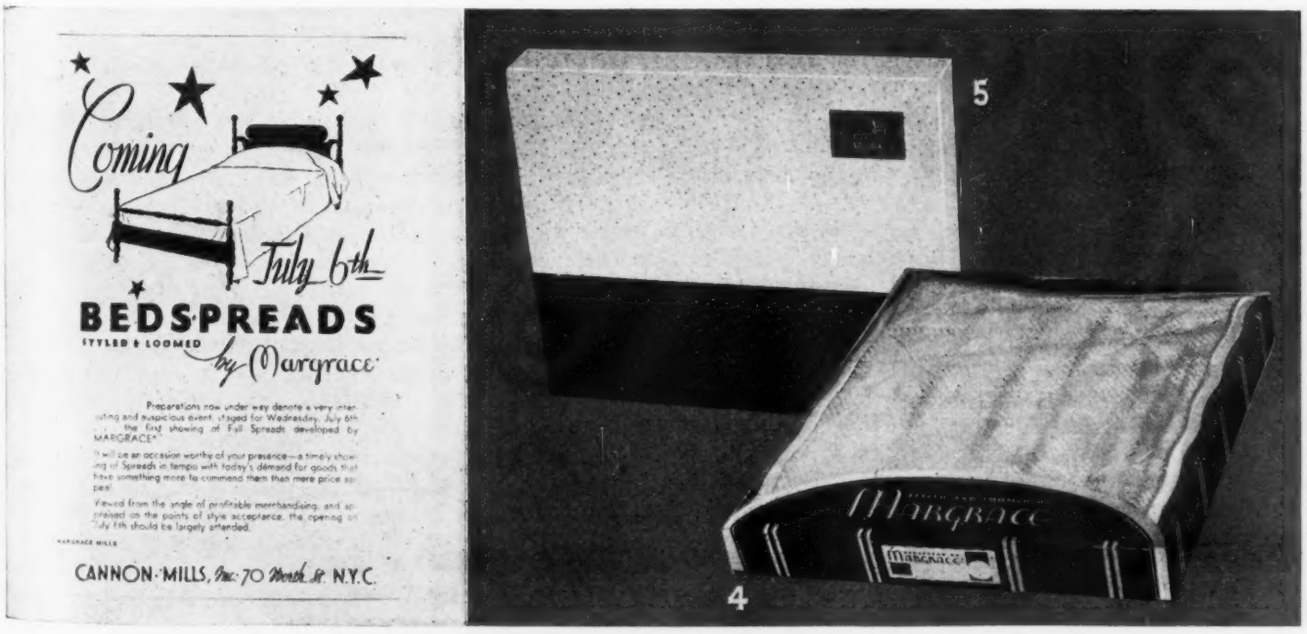


Fig. 4. Bedspreads neatly packaged and wrapped in Cellophane. Fig. 5. Novelty set-up box for Margrace bedspread intended primarily for gift purposes. At left, advertisement.

Rayon

A YARN BUSINESS—NOT A BONANZA

By Rufus W. Scott,
Chairman, Executive Committee, Tubize Chatillon Corp.

> "LET US be honest with ourselves. Rayon has passed the age of miracles. It is a yarn business, nothing more and nothing less, and we must settle down to running it on that basis. . . . . We need not have in our plants one pound of rayon that we can't sell."

WE WILL be best able to appraise the present crisis of the rayon industry if we can get a little perspective on it. Gazing backward, what do we find? The rayon industry has had a silver spoon existance; it has relied upon its lucky star, and up to this year that method has proved more or less effective. The industry has been administered in a hit-or-miss fashion; it has made money for us—and sometimes, indeed, it has made money in spite of us. Rayon management didn't bother about economic laws or business laws. Why should it? Such rules could not affect rayon; rayon had a charmed existence; it would survive in spite of anything.

That is the picture when seen in perspective. The bonanza method served well enough in the bonanza days. Now, facing our greatest crisis, we must admit error. Individually we have had views, which may have been mistaken views, and our lack of judgment brought on the present condition. There has been too much trusting to luck, too much guesswork.

We can see now where this policy has led us. A state of needless panic and alarm exists, which has wiped out both profits and price stability. There is much deep thinking in the rayon industry today, much regret for mistaken moves. But regret by itself will not get us anywhere. We must change our whole attitude—our viewpoint on the industries we sell to and on our own industry. We must survey the relationship of rayon producers and rayon users, decide upon equitable policies to define this relationship, and then steadfastly follow these policies with no exceptions for the favored few.

Let us be honest with ourselves. Rayon has passed the days of miracles. *It is a yarn business, nothing more and nothing less;* and we must settle down to running it on that basis. We are going through a stiff period of self-education and must emerge with sounder ideas. Why all this worry about surplus? The existing stock totals about 25,000,000 lb. which is possibly 10,000,000 lb. beyond normal working stocks. This presents a problem, but it does not warrant the present hysteria especially when we realize that ours is a 100% manufactured product. There is no next year's crop waiting for us, and for which we must clear the way in a hurry. We have —or rather, we *could* have—complete control of our industry. We need not have in our plants one pound of rayon that we cannot sell.

We have not exercised this control. The problem is one of management policy. Rayon has come out of its infancy; it is entering a new phase of existence. That is the true meaning of the present condition; it is a form of growing pains. We must remember that the rayon industry has an incalculable future, irrespective of who among use will take part in that future. We think rayon has made good progress, but its past is negligible when compared with its future; in ten years, the present output of yarn will seem like nothing at all.

If we can lift ourselves high enough above the present needless and foolish competitive warfare, we will be able to see the future.

The costly lesson of recent months was not forced upon us; we ourselves caused it. It need not have been; it was due to a lack of cooperative spirit and a lack of understanding of the fundamentals. We could have avoided this profitless underselling and overproduction; indeed, it looked for a time last spring as though we were on the right path. However, the condition is on us, and the next best thing is to learn wherein we erred. Some method of compiling reliable data on sales and stocks of rayon yarn would be an opportune and forward step to take in this connection. Such data could give us the current picture accurately and help us in making our plans for the periods that lie ahead.

We cannot blame it on surplus, and we cannot blame it on the depression. It is our own fault, our own responsibility and we will get nowhere until we admit that. Now we are beginning to see our error—and more of us will see the error as the days pass. Our own persistence in individually following mistaken policies has brought on this condition. Temporarily, the situation is out of hand. The necessity arising out of these conditions requires corrective treatment.

This fall the rayon industry is entering its second era. It will come out of the present crisis a sound, common-sense yarn business, which in truth it is. We will assign chemical and technical guidance to its rightful place, and will follow the laws of good business in production and sales. We will gain great things from this crisis. The industry, when it does emerge from these shadows of instability and price-cutting, will be on a sounder basis than ever before. It will go forward—and its progress will be the greater because it will be guided by the elementary rules of sound economics.

Needle Straightening

SIMPLE PROCEDURE FOR THE FULL-FASHIONED KNITTER

By Albert E. Parker
Educational Instructor, Ajax Hosiery Mills, Phoenixville, Pa.

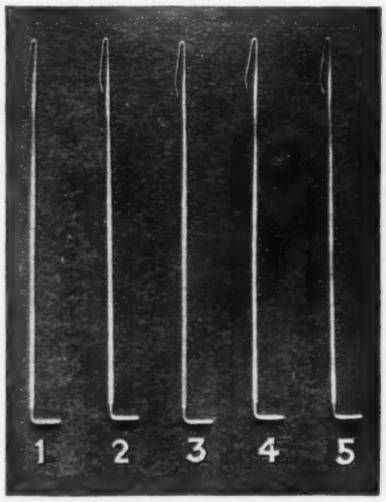


Fig. 1. Correct and incorrect needle shapes. (1) Beard too straight, (2) beard too close, (3) needle correctly shaped, (4) beard too high, (5) too much curve or hook

◆ *The exacting requirements of the stitch-transferring operations in the knitting of lace full-fashioned hosiery have served to emphasize to many knitters the importance of uniform needle straightening. In this article Mr. Parker outlines a straightening procedure which affords the desired accuracy and is not difficult to learn.*

THE ability to straighten needles properly is the biggest asset a knitter can have. Straight needles and narrowing points are the foundation of good knitting, and this is especially true at this time when there is being produced such a large amount of lace work, which necessitates transferring of stitches onto every needle in the machine.

Bent Welt Hooks Injure Beards

A perfect section of needles will not remain perfect very long if other relative units, such as welt hooks and narrowing points, are not kept straight. If welt hooks are allowed to become twisted or bent and this condition is not corrected, they will bend needle beards while the welts are being turned. While these slightly bent beards might not interfere with the knitting of plain work, they will not fit correctly in the grooves of the lace points, causing drop stitches and narrowing holes.

When we stop to think that the latest-type machines in use today have about 10,000 needles and 5,000 narrowing points, which all have to fit perfectly to make just a plain picot, we then realize how important straight needles are in making lace work. Load-ups may be caused by too much clearance between the tip of the beard and the stem of the needles. The general cause of this is carelessness when bringing the welt hooks through the needles in turning welts, thus bending the head of the needle backward. A needle bent in this manner should be taken out at once and straightened.

Blind stitches, resulting from closed beards, are often caused by putting too much pressure on the welt bar when laying the bar on the needles. On plain work this does not always cause a drop stitch, but the opening becomes so small between the beard and stem of the needle that the sharp point of the beard pierces the slender fiber on the needle. This leaves it so thin that it breaks out under pressure, or usually when the stocking is being boarded. On lace work this condition shows up immediately, as the closed beard will not hold the lace stitch and the result is a hole or drop stitch.

The knitter should always bear in mind that the continual pressure of the needle against the presser has a tendency to bend it back away from the sinker head; and when he puts in a new needle that he knows is straight, he should not pull it back to line up with the old needles, but line the old ones up with the new.

The same rule applies to narrowing points. It is a natural tendency when pliering narrowing points to pull them to the front. The result is that the tip of the point presses against the needle below the beard, preventing the head of the needle from lying close into the groove of the point. While a point bent in this manner might take the stitch off the needle, it will not deliver it back again. Too much curve in the point will cause the same trouble.

Don't Grasp Needle at Groove

Knitters should always be careful when pliering needles or points not to grasp them at the groove, but to plier them at the middle of the needle and at the tip of the point. Much difference of opinion exists among knitters as to the proper shape and height of the needle beard. Recently the writer examined the straightened needles of two knitters working in the same aisle. One had the beard too flat with not enough clearance, and the other had too much clearance and too much hook. When the latter was asked why he had so much hook in the beard, he replied that another knitter had told him that by putting on more hook, or curve, he would have less trouble from mispressing. He did not realize that he was thus causing himself much narrowing trouble.

This proves how easy it is for a knitter to be led from one method of pliering needles to another. This is especially true where the knitter has not had the advantage

of proper instruction in needle-pliering, or been taught the fundamental principles of why the needle beard is shaped the way it is. If this knitter had been trained under a competent instructor regarding the proper shape of the needle beard, as shown in Fig. 1, he would have known that it was not the shape of his needles, but the adjustment of the machine, that was causing the mis-pressing.

It should be the aim of the management to have the knitters do their work in as nearly the same manner as possible, whether it be in the care of the needles or in the method of operating the machine. Uniformity of method should be the watchword. If a red mark is used on the pointex rack to show when the pointex is finished in the heel, red should also show when the last lace dip is in at the instep. All narrowing and lace chains should be set up the same way. All slacker changes should show plainly on the chart hanging near the middle of the machine. A style card with all the different changes plainly typed should be hung near the course counter where it can be easily seen. The same rule and marking applied to all the machines tends to make the plant more flexible, so that when it is necessary to change knitters around it can be done without confusion and many costly mistakes will be eliminated.

In order to attain this uniformity, it is practically necessary to establish some form of organized employee training. This training, if properly developed, will much more than repay the time and effort that is involved.

In the particular case of needle straightening all that is necessary to carry on the proper instruction is a good pair of pliers, a supply of needles of various gages, and an abundance of patience. This last is very important because the operation is quite tedious and, in order to show definite results, must be repeated over and over again until correctly pliering the needles becomes a habit.

I find it advisable to explain briefly to the student how the needle is made. The many operations necessary to produce the needle are as follows:

The steel wire, which is of proper gage, is cut to length, allowing for the beard and the butt. While the body is still round, the flat side in which the eye is punched is milled or cut away, and the beard is then ground to the proper diameter by skilled hands. The shank is next formed by pressing it out of the round, thus stiffening the greater portion of the stem against the backward pulling of the fabric, which is to hang in the needle with more or less tension. This stiffening must also resist the pressure of the narrowing points.

After the needle is made true to form, it gets its heat treatment, which renders the soft wire stiff and springy. The needle then goes to the finisher, where it is examined for defects. If found to be perfect, it is straightened. This straightening is done by highly skilled hands and presents difficulties which are not encountered by the knitter when he pliers the needle preparatory to placing it in the machine. The surface of the needle is then made perfectly smooth by polishing.

This explanation is followed by demonstrating the proper way to handle the pliers in order to straighten the needle correctly.

Take the pliers in the palm of the right hand by placing the little finger on the inside of the grip and the other three fingers on the outside. This brings the pliers to rest on the base of the first finger and under the thumb. The little finger is then used to open the pliers and the other three fingers to close them. This method of manipulating the pliers, with a little practice, gives one absolute control of them.

After acquiring some control of the pliers, it is a good idea to secure some old bent needles and practice straightening the stem, as shown in Fig. 5, until some degree of skill is attained in handling the pliers. It is too confusing for a beginner to try to learn to straighten needles before he has acquired some control of the pliers.

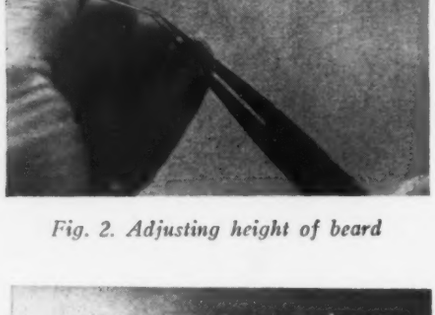


Fig. 2. Adjusting height of beard

Fig. 3. Aligning beard with eye

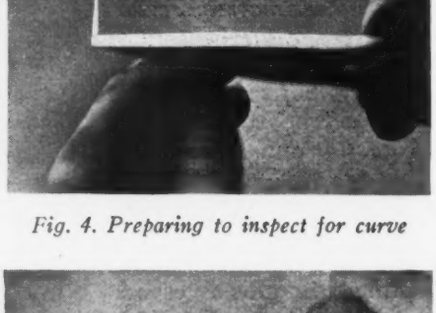


Fig. 4. Preparing to inspect for curve

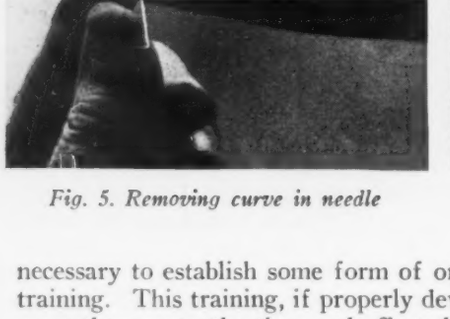


Fig. 5. Removing curve in needle

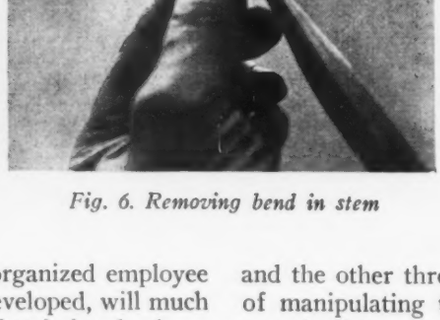


Fig. 6. Removing bend in stem

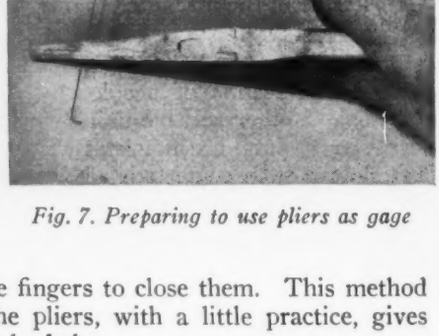


Fig. 7. Preparing to use pliers as gage

Shaping the Beard

The beard of the needle must be shaped up first, bearing in mind that there are two essential points to be observed. First, the beard must have the proper curve

or hook so that it will press easily and fit correctly into the narrowing point. Second, it must have the proper opening, or clearance, to allow the thread to pass under it without splitting, and still not be too high to interfere with the pressing.

Take hold of the needle as shown in Fig. 2, holding it by the butt with the head toward the body and the beard toward the right hand. This brings the beard into a position where one can see to plier it to the proper shape and height. This is done by using the corner of the tip of the pliers, as in Fig. 2. If the beard is too low, grasp it in the center and raise lightly, without twisting the pliers, until the required height is obtained.

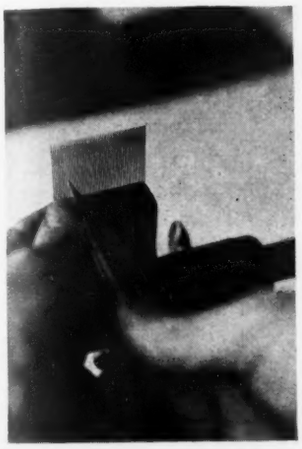


Fig. 8. Lining up and spacing

To determine the proper height of the beard, use the round part of the butt of another needle as a gage. This butt should just touch as it slides under the tip of the beard. This rule applies to both plain and lace work and to all gages.

If the beard is too high, close it by a slight pressure at the head of the needle. If it has too much hook or curve, draw the pliers lightly down the beard toward the tip, being careful not to put on too much pressure.

After the beard is the proper shape and height, a slight turn of the left hand will bring the needle beard on top of the second position, as shown in Fig. 3. The beard can then be lined up to the center of the eye and the stem of the needle. If there should be any side-curve in the beard, turn the needle sideways to the first position and draw the pliers down to straighten. If the beard is not in the center, do not take hold of the head of the needle and twist it, but turn the pliers a little first, and then close them on the head of the needle at the very tip. In that way one can swing the beard to either side without danger of bending the needle near the top in front of the beard. While performing this operation, keep the pliers in a straight line with the needle, as shown in Fig. 3.

Removing Curves and Bends

Now place the butt-end of the needle with the butt pointing down in the pliers about ¼ in. from the tip, as shown in Fig. 4. By raising the pliers in a horizontal position, one can now look down the entire length of the needle. Should there be any curve in the needle, hold it in this position while sliding it down so that it can be grasped in the middle. Then press the needle with the first finger and the thumb, one on each side of the pliers, in order to remove the curve, as shown in Fig. 5. This is the strongest part of the needle, and therefore this operation requires considerable practice.

After this process, place the needle back again to see if it is straight. If so, leave the needle in the same position, and turn the pliers straight up and down to the fourth position, shown in Fig. 6, with the needle beard on top. The needle is now in a position where one can see it through the small opening between the tips of the pliers. Should there be any bend in the stem, place the first finger and the thumb, one on each side of the needle and a little back of the other, so that a little pressure will spring the needle. This is done with a stroking motion toward the head of the needle. The curve in one side of the needle is taken out by the thumb following the finger, and on the other side by the finger following the thumb. This is done while the needle is still held up in line with the eye, so that it can be sighted after each stroke of the fingers.

Learners, and knitters as well, often make the mistake of not using the pliers as a gage when finishing the pliering of the beards. To hold the needle without using the pliers as a gage leads one to adjust the eye to the needle rather than the needle to the eye.

To prove how easy it is to be deceived by an optical illusion, place the needle in a pair of pliers halfway between the butt end and the tip end and halfway down into the jaws of the pliers as shown in Fig. 7. Then look through the space in the pliers with the right eye closed to see if the beard is in the center of the groove. If the needle is pliered properly, the same amount of the dark depth of the groove should show on either side of the beard.

If you have what may be termed a good eye and it hapens to be your left, you will find that your pliers have made a perfect gage and you are looking directly at the beard and into the groove. You will then be able to detect immediately whether the beard is in the center of the groove or not. If, however, you hold the needle in the same position, close your left eye, and open the right, you will notice that an illusion has taken place because you will no longer be looking through the pliers as a gage. It will be necessary to turn your hand and the pliers into a position so that you can see the beard through the pliers with the right eye.

Therefore the last operation in the pliering of a needle should be to place the needle halfway down into the jaws of the pliers and halfway between the butt and the tip of the needle. Then your pliers will serve as a perfect gage whether you use your right eye, your left eye, or both eyes.

Fig. 9. Position for inspecting beard centering

Nearly all lace and narrowing trouble is due to the fact that the needle beard is not in the center.

After some efficiency has been acquired in finger-pliering, the straightened needles are put in a needle clamp holding 2 in. of needles, as illustrated in Fig. 8. The needles are then lined up and properly spaced. After this is done, if the clamp is turned down, as shown in Fig. 9, it will bring the needle beards facing up. In this position it can be readily seen whether any of the beards are not centered properly. This helps the knitter to correct his mistakes in the future.

The needles straightened in this way can be used in the knitting department to fix up needle smashes. In conclusion, I would say that, of all the different methods of straightening needles, this one seems to be the best, because it is not only the simplest but the quickest method for the beginner to learn.

ANALYSIS OF METHODS AND POLICIES REDUCES

Finishing-Plant Costs

By Thomas G. Laufer

WILL an analysis of departmental methods and policies help to produce profits in this plant? If so, how large are the savings in cost which can be made by an experienced analyst? These are questions which every finishing-plant manager should ask himself. Opportunities for reducing waste, avoiding delays, and making other economies exist in every dyehouse and print works; the size of the mill, present operating conditions, and other factors determine the amount which can be saved. The results obtained by an analyst in a New England finishing plant are indicative, however, of the economies which can be effected in other establishments.

First will be outlined some of the changes made in this mill and the results obtained in a few individual departments. Then will be summarized the savings in labor costs which followed an analysis of methods and policies throughout the plant and the setting up of standard methods, together with a bonus plan. Completion of the program required one year of the analyst's time and the services of a time-study man for the same period.

Gray Room and Bleach House

In the gray-room storehouse it was found possible to save many footsteps and much manual labor by the installation of a simple belt conveyor from the receiving platform to the bale-storage space and from the storage space to the gray-room floor. Tiers where the bales are stored were labeled by customer's name and style number, and a file of the locations was installed in the receiving room office. Frequently the planning department sends an inquiry to the receiving room asking questions concerning bales received, and with a file of the location of bales kept up to date, it is a simple matter to get the desired information.

Layout of the gray room was modified to eliminate needless trucking. A space adjacent to the plaiters was provided for bales arriving in the department, and sewing machines were placed adjacent to the plaiters. Tachometers were fitted to the singers, a record of the speeds by fabric and quality kept for a month, and then standards set for the various fabrics.

Forms were devised for recording the lot number, quality, and style of fabrics processed in the bleach house. Bleach-house records were amplified to include kier boiling and bleaching formulas, time required for bleaching, amount and pressure of steam, etc. Analysis of the bleach-house records pointed out ways of economizing on steam and materials; but the total savings were difficult to estimate, as the greatest benefits came from producing a uniform bleach and minimizing the quantity of goods returned for rebleaching. Likewise these records enabled the chief chemist and general manager to scrutinize the methods employed by the bleacher; and in case the desired results were not being obtained, what was done was a matter of record and corrections could be made.

The dyehouse offered a fertile field for savings. An analysis of the manner in which the dye liquors were brought to a boil showed that it often required ½ to ¾ hr. for this operation. Investigation of the outlets for water and steam disclosed the fact that there were various sizes in use, and that by standardizing on one size less time would be required to fill the jigs with water and less time to bring the dyestuffs and water to a boil. Adoption of standard-sized outlets required only a small outlay, but resulted in savings of approximately $4,000 a year.

Equipment for preheating process water was installed at a cost of $7,500. The time saved by use of the preheater was estimated to equal 54 man-hours per day, or 13,500 per year. At the rate of 50c. per hour this gives a saving in labor costs alone of $6,750. If overhead is considered, the savings will reach at least $10,000.

Tachometers were placed on the pads, speeds recorded, and standards set, as for the singers. For some types of work it was found possible to place pot eyes on the reels, and thus to transform them into a continuous dyeing machine. In this way the goods could be machine sewed instead of hand sewed, and the loading and unloading time was reduced. Drip pans were placed under chemical barrels to eliminate waste. A form (Fig. 1) was devised for recording dyeing formulas and costs.

In the starch room, fabric speeds and finishing formulas were standardized. Study of speeds and maintenance costs proved profitable in the calender room, as these analyses not only reduced labor costs, but eliminated excessive roll grinding.

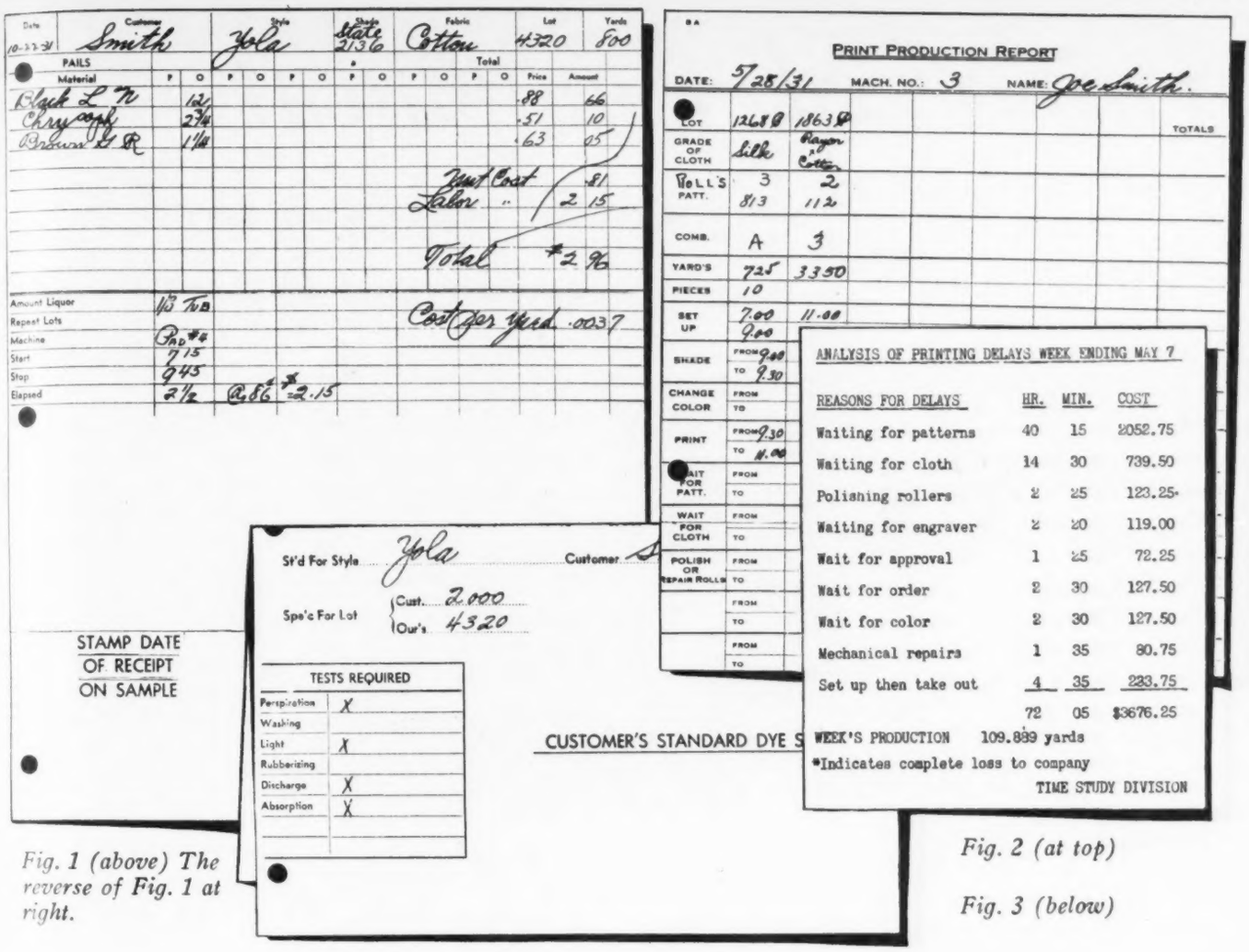
Color Mixing and Printing

Layout is important in the color shop. Here the barrels of color were arranged in a horseshoe shape, and barrels for water were located in such a way as to minimize the distance which the color mixers had to walk.

Printing machine speeds were investigated, particular attention being paid to the causes for delays. The boss printer was assigned a clerk to relieve him of petty details. Back-grays were graded and labeled according to their condition. A sample printing machine was installed. A form for recording print production is shown in Fig. 2, and an analysis of printing delays is given in Fig. 3.

After the production departments had been analyzed, standards fixed, a bonus plan installed, and a budget set up for the guidance of each foreman, the office routine was investigated and procedures were evolved to improve production planning.

Carrying out of the entire program resulted in savings



Date 10-22-31 Customer Smith Style Yola Shade 2136 Fabric Cotton Lot 4320 Yards 800

Material	PAILS	Price	Amount
Black L R	12	.88	66
Chrysoff	2¾	.51	10
Brown L R	1⅛	.63	05
		Just Cost	.81
		Labor "	2.15
		Total	$2.96

Amount Liquor ½ Tub
Repeat Lots
Machine Pad #4
Start 7.15
Stop 9.45
Elapsed 2½ @.86 = $2.15

Cost per yard .0037

PRINT PRODUCTION REPORT

DATE: 5/28/31 MACH. NO.: 3 NAME: Joe Smith.

			TOTALS
LOT	1268 B	1863 B	
GRADE OF CLOTH	Silk	Rayon Cotton	
ROLL'S PATT.	3 813	2 112	
COMB.	A	3	
YARD'S	725	3350	
PIECES	10		
SET UP	7.00 9.00	11.00	
SHADE	FROM 9.00 TO 9.30		
CHANGE COLOR	FROM TO		
PRINT	FROM 9.30 TO 11.00		
WAIT FOR PATT.	FROM TO		
WAIT FOR CLOTH	FROM TO		
POLISH OR REPAIR ROLLS	FROM TO		
	FROM TO		
	FROM TO		

ANALYSIS OF PRINTING DELAYS WEEK ENDING MAY 7

REASONS FOR DELAYS	HR.	MIN.	COST
Waiting for patterns	40	15	2052.75
Waiting for cloth	14	30	739.50
Polishing rollers	2	25	123.25
Waiting for engraver	2	20	119.00
Wait for approval	1	25	72.25
Wait for order	2	30	127.50
Wait for color	2	30	127.50
Mechanical repairs	1	35	80.75
Set up then take out	4	35	233.75
	72	05	$3676.25

WEEK'S PRODUCTION 109.839 yards
*Indicates complete loss to company
TIME STUDY DIVISION

STAMP DATE OF RECEIPT ON SAMPLE

St'd For Style Yola Customer

Spe'c For Lot Cust. 2000 Our's 4320

TESTS REQUIRED	
Perspiration	X
Washing	
Light	X
Rubberizing	
Discharge	X
Absorption	X

CUSTOMER'S STANDARD DYE S

Fig. 1 (above) The reverse of Fig. 1 at right.

Fig. 2 (at top)

Fig. 3 (below)

in direct and indirect labor of $79,000 per year. As the annual payroll of this plant was $280,000, the savings represent about 30% of the total. A summary of the savings effected in the various departments follows:

Department	Savings
Gray Room	$6,000
Dyehouse	26,000
Starch and Calender Room	9,500
Color Room and Print Shop	8,000
Singers	3,000
Finishing	18,000
Make Up	7,000
Receiving	1,500
Total	$79,000

Finally should be mentioned one or two general principles which should be followed in making an analysis of this type. An analyst qualified to do this work for a plant may cost more per year than some of the foremen, but the money invested in him will be returned many times over during the first year by the economies he can effect. When setting up a standard method of performing operations, employ an experienced time-study man, not necessarily experienced in a finishing plant, but a man who has the necessary knowledge of time-study principles.

After a budget has been made, insist that it be lived up to. This will insure economical operation, consistent with production demands. Have the cost department correlate the information obtained, and then use it. Stop taking orders at a loss. Profitless production may keep the wheels turning, but it will eventually wipe out the capital invested.

Executive Backing Necessary

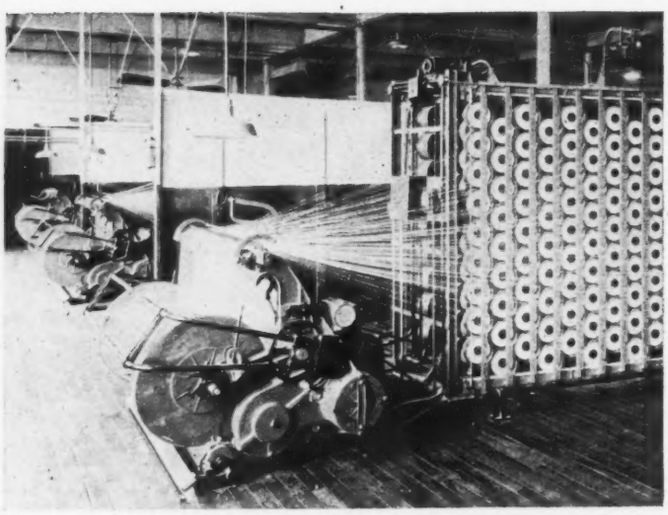
Too many plants engage an analyst, introduce him to the plant organization, and then—when he recommends changes in equipment, layout, or personnel—do not give him the executive backing that is necessary. Often, backing is not given for reasons of petty politics, dislike to antagonize a clique, or other unbusinesslike reasons. If the management does not intend to give the analyst the proper backing for the successful carrying out of his plans, it would be much better for all concerned if he were not engaged. When he is engaged, let him know that no matter what powerful clique or executive demands his head, because he has brought to light improper conditions in a department, that he will be given a fair hearing. Assure him that when he proves himself right concerning conditions, they will be corrected. Give him the proper backing and cooperation.

If there are weeds stunting the growth of the plant and causing losses, they should be removed, regardless of personal considerations. This does not necessarily mean a hard-boiled attitude and elimination of old and experienced employees, but it does mean that the plant's general welfare is a bigger matter than the retaining of an inefficient and pampered employee, regardless of his title or affiliations. This holds true for policies, as well as for individuals.

Improved Equipment

FOUND PROFITABLE FOR COTTON WARP PREPARATION AND WEAVING

RUNNING a warper at 900 yd. per minute and running an automatic cotton loom at 200 picks per minute are not purely theoretical possibilities; with certain yarns and fabrics they are actualities. And therein lies the story of how new methods and radical improvements have cast the shadow of obsolescence over old methods of warp preparation and weaving.



New warpers running at 900 yd. per minute from automatic-spooler creels

The advent of the automatic spooler, followed by the magazine cone or tube creel, coupled with the high-speed warper, sounded the death knell for the old spoolers and warpers—the death knell consisting of a barrage of cold facts and figures. Seldom is machinery so definitely rendered obsolete. A few typical figures tell the story:

Some Illustrations

A Northern mill with modern warp-preparation equipment runs 24,000 lb. per week of 21/1 and 23/1. The modern equipment requires eight operatives against sixteen under the old system; and labor cost, on a 55-hour basis, is $0.0076 against $0.0133. A Southern mill running 110 hours per week shows a saving of $12,646 per year in wages alone on an investment of $11,163. There is also an additional saving of $300 on waste and interest on inventory. A Northern mill previously ran 14,500 lb. of 19.6/1 with ten operatives at a labor cost of $0.016 per lb. This mill now runs 27,000 lb. with 12 operatives at a labor cost of $0.0088.

Another Southern unit that used 43 operatives on 30/1, at a labor cost of $0.0128 per lb., now gets along with 19 operatives at a cost of $0.00735 per lb. Still another produced 36,700 lb. of 30/1 with old equipment at a labor cost of $0.0144, on a 55-hour basis, and now turns out 67,000 lb. per week at a cost of $0.00828.

A very thorough survey in a Northern mill running 110,000 lb. of 13.2/1 per week, on a 54-hour basis, shows the following results: Labor costs on winding and warping have been reduced from $0.00731 to $0.00536. The modern methods show annual saving in wages of $11,356, annual saving in waste of $5,241, and a saving in interest on yarn in process of $226, making a total of $16,863. Considering depreciation and repairs, the annual net saving is $16,830, which shows an annual return of over 51% on an investment of $32,450.

Examples of the return on investment possible include the figure of 96% for day-and-night operation, without considering savings in waste and floor space. Another case shows 36% return on day operation; another, in a small mill running 15/1 on day shift, 32%. Figures were taken indiscriminately from mills using automatic spooling and high-speed warping and those using high-speed winding and the magazine creel with high-speed warper, since both systems have definitely rendered the older methods obsolete. Incidentally, some of the most interesting problems are obtained from mills that are extremely efficient in the old methods. Even with such mills, return on investment can be figured from average performance in other plants to be in the neighborhood of 20% per year; and it is highly probable that such mills, since they have evidenced such efficiency with the old methods, could do much better than average with new methods, and thus show a larger return.

Effect of Preparation on Weaving

All of the figures enumerated have dealt with warp preparation as a unit process. However, the resulting savings in the weave room are almost as—and in some cases more—important than the direct savings in warp preparation. Stops due to warp trouble in the weave room can be reduced 20 to 25% by the use of modern methods of warp preparation.

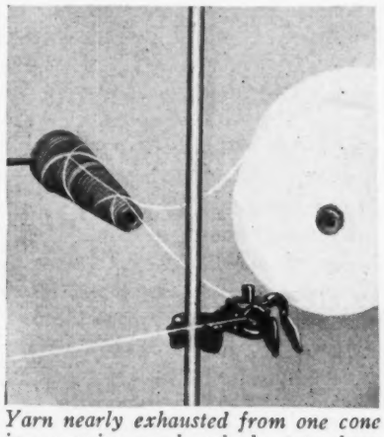
One fact that the average mill man has been reluctant to admit is that winding can cost less than ordinary spooling. The facts show that in both automatic spooling and high-speed winding the cost is less than with the old spooler. In the first case the decreased cost is due to the automatic features, and in the latter to the fact that the winder, having a constant winding speed,

This is the seventh article of our series surveying the developments in all branches of the textile industry which have rendered equipment still in operation obsolete. Machinery already covered includes that for cotton yarn, July 4, 1931; worsted yarn, Aug. 1; woolen yarn, Sept. 5; silk and rayon throwing, Nov. 7; circular outerwear and underwear, Jan. 9, 1932; and raw-stock and yarn processing, July.

requires less motion on the part of the operative than the spooler with its variable speed and irregular run-out of bobbins.

The old warpers run at a speed of 60 to 75 yd. per minute. The new warpers run from 400 to 900 yd. per minute and produce a better warp in most every case. The comparison is obvious. An interesting sidelight is that sales-yarn mills can reduce the cost of ball warping—new warpers now running at 250 yd. per minute against 60—and, in addition can supply salesmen with an excellent sales argument, since warps prepared with modern methods, including weaver's knots, will run far better in the customers' plants.

Savings due to modern methods of warp preparation that are usually disregarded by the average mill man include decrease in inventory and floor space. In the first instance the fact that inventory of yarn in process can be reduced 20 to 35% may not amount to more than a few hundred dollars a year if interest is figured at 6%; but it has far greater significance if the mill has, say, 15,000 lb. of yarn tied up unnecessarily in inventory, due to obsolete methods, and cotton drops from 15c. to 6c. Obviously, if a mill has more floor space than it needs, and no chance to rent it, any saving in floor space is not a real asset; but where floor space is a factor, it might be considered that one spindle of automatic spooling has replaced 3.9 ordinary spooler spindles, and that one high-speed warper replaces an average of 4 to 5 old warpers.



Yarn nearly exhausted from one cone in magazine creel and about to draw from another

In some cases where very fine yarn is used, such as 120/2, it has been found that either the automatic-spooler creel or the magazine cone creel increases the number of stops with high-speed warping over older methods. The interesting point, however, is that application of the high-speed warping principle, drawing over-end from spools, has produced excellent results.

Until recent years slashing was looked upon as a necessary—albeit a very necessary—evil. Now, however, it is realized that, although in itself it offers a minor chance for savings, the effect on the weave shed is important. An article in TEXTILE WORLD on Jan. 30 illustrated the extent to which at least one group of mills went to get better slashing. There is no question that modern slashers are better than old ones in construction and speed. Probably the most important feature, however, is the application of temperature-control methods to slashing. Mills have but recently awakened to the fact that controlled slashing means radically better weave-room performance.

Weaving remains in principle much as it always has been—the throwing of a shuttle back and forth. The "wave" motion of a German loom, the circular loom, and the compressed-air picking motion have all been interesting but, to date, of little practical value. It is not in radical changes in principle, but in radical changes in design, that the modern loom shows its superiority over the old.

Take, for example, automatic box looms one year old run in comparison with non-automatic looms three years old. The new looms show a reduction of 34% in weaving cost per set, including all overhead and labor. The return on investment is 29%.

Another case is a mill running a leno weave. The results given are taken from the mill's own records over a period of months. The non-automatic looms were 16 years old; the new automatic dobbies, 6 months. The hours per week were 48; and the picks per inch, 27. The new looms showed a saving per yard of $0.01578. Translated into other figures the new looms showed a 40.8% saving in weaving cost, which includes all overhead charges, over 20% more cloth per loom, 262% more cloth per weaver's set, and over 42% return on investment. Obsolescence of the old box loom is in little doubt.

The single-shuttle loom presents a somewhat different problem. Needless to say, a non-automatic single-shuttle loom has been obsolete for so long that it is not worth discussing. The latest type of single-shuttle loom will run up to 200 picks per minute and in some respects renders the older-automatic loom obsolete. The new looms can lower weaving cost 20%; but, perhaps of even greater importance, the point has been reached where it is no longer economical to rebuild old automatics to take care of the usual wear. New automatics will show a better return on investment than refurbished old looms.

Old methods of warp preparation have been definitely superseded, regardless of the mill's product. As selling prices are set to a considerable extent by the most efficient units, few mills that refuse, through reasons financial or otherwise, to modernize such equipment can hope to continue long in business.

Modern single-shuttle looms will run as high as 200 picks a minute

A Wage Study

By Charles H. Hatch
Miller, Franklin & Co., Inc.

IN A WOOLEN AND WORSTED MILL REDUCED COSTS 30%, MAINTAINED QUALITY

A SUCCESSFUL, well-managed woolen and worsted manufacturing company decided to find out whether it could not reduce prices and still maintain its high quality of product and its excellent service.

The company's executives set themselves to the task of eliminating waste and inefficiency wherever they might exist. They did an excellent job—as evidenced by the fact that they saved about $600,000 a year, without sacrificing quality or service in the least. However, to make certain that nothing had been overlooked they called in outside consultants. They succeeded in still further reducing costs to the extent of another $579,000 a year. Of this, $131,000 was taken off the non-productive pay-roll. Furthermore, the engineers saved $448,000 in productive labor. This was accomplished by establishing new and more equitable base rates which reduced direct costs more than $327,000 a year, and as a result of time studies and rate setting which accounted for a saving of more than $121,000 a year.

Let us consider first the savings that accrued from establishing new base rates. It is to the credit of the management that it was not in favor of cutting all wages a definite percentage. Incidentally in the last few months I have talked with the operators of a great many textile mills, large and small, in the North and in the South and there is a very marked disinclination generally to make further wage cuts. The mills, instead, are looking for ways to reduce costs without lowering wages or hurting quality and service. Many of them feel that they have done all they can, but I am sure that most could do much more if they knew just what to do and how to do it. That is why I am telling of what this textile company did. It got down to fundamentals and, in so doing, got results.

Basic Study of Wage Rates

First, it had the engineers making a searching study of all rates in effect in all departments of the mills. This was to determine whether the scale as a whole was in line with wages paid for similar work in the locality where the mills are located and in the industry as a whole. The management felt that it could well pay somewhat more than the going wage in order to keep up quality, but it wanted to get full value received.

Second, rates for the various jobs within the mills were compared to determine whether they were in balance; that is to say, whether individual employees were being paid fairly for what they were doing and whether they were giving "value received."

It was found in the first place that in some cases rates were so far above those usually paid for the same work in the industry that the company was not getting returns commensurate with the rate. These were adjusted.

Wages within the company were found to be badly out of balance. Some employees were being paid more than they were worth—some less. There had grown up a tendency to pay for the man rather than for the job or the results. A relative of some foreman was more than likely to be favored. Periodical raises as a reward for long service had resulted in rates higher than the work was worth. One man who years ago had made a valuable suggestion had been given a substantial raise. It would have been equally effective and less expensive to have given him a good-size lump sum outright.

In order to get all wage rates into balance, every job was studied to determine accurately the experience, skill and training which it required. Rather narrow rate limits were set for each, so that the department head would not have too much freedom in determining what any individual should be paid. Truckers, as an example, are now paid from 45 to 50c. an hour. The foreman can grade the men between the limits in accordance with his judgment as to their ability.

It made no difference to the management whether the new rates were lower or higher than those formerly paid. The sole test was: "Is this a fair rate for the work? Are both the worker and the company getting full value received—no more and no less?"

It is apparent that this readjustment was not at all a blind, flat, horizontal cut. In some cases where it appeared that workers had been underpaid the rates were raised. But on the whole the pay-roll was reduced. The saving was more than $327,000 a year or about 11%. This method of readjusting wages was not only fair but effective. Most of the employees realized that the readjustments were just and there was no bad effect on morale.

Adjustment of Piece Rates

Some of the departments were already working on a piece rate basis. There were others, on an hourly rate, which could be switched to piece rates. Both kinds were time-studied, first to see whether methods could be improved and production increased, and second to determine what the rates should be.

Many of the existing piece rates were found to be way out of line. Usually this was because the methods in use were wrong. Sometimes it was due to the type or location of the equipment. Thus in one department a certain grouping of equipment made it possible for one man to perform three operations, while a few feet

away the exigencies of floor space required such a grouping that it took three men to perform the same operations. Such faults were corrected.

The task in the re-spooling department had been 10 spindles per worker regardless of the type of yarn. Time studies proved that the number of spindles per worker should depend upon type of yarn. The direct labor cost of re-spooling fell 50%, without reducing the individual earnings of the workers, and production increased 75%.

The existing arrangement of equipment in the ring spinning department made it possible for one operator to tend only 200 spindles. The time studies indicated that by rearranging the equipment the task could be increased without affecting adversely the operator or the product. Thus, for a certain type of yarn, it took 16 operators to tend 3,200 spindles. Under the new arrangement of equipment 3,200 spindles are tended by nine operators and two helpers. For two types of yarn the direct labor cost has fallen 30%; for three others, 32%. The saving from time study, task setting and rate setting is running at the rate of $121,000 a year.

Wage Rates Before and After Revision

Operation	Wage Rate per Hour Prior to Revision	Wage Rate per Hour After Revision
Wool Sorting	.89	.75
Worsted Carding — Ballers	.45	.35—.38
Worsted Combing — Comb Tenders	.45	.35—.38
Gill Box Tenders	.45	.35—.38
Worsted Drawing Frame Tenders	.45	.37—.41
	Day Work	Piece Work
Worsted Spinners	.85½	.70
Side Tenders	.51	.42
	Piece Work Low High	Piece Work
Wool Spinning — Side Tenders	.51—.99	.48
	Day Work	Piece Work
Ring Spinners	.48—.51	.45
Twisters	.49—.51	.45
	Day Work Low High	Piece Work
Beam and Band Warpers (Most warpers getting .60 or over)	.54—.66	.55
	Piece Work Low High	Piece Work
Respoolers (High figures not unusual)	.45—.71	.42
Sizing (Most paid .65 or over)	.57—.73	.54—.58
Handers In	.45—.51	.42
Drawers In	.60—.65	.55
Warp Twister (2 out of 4 paid .70)	.54—.70	.55
	Piece Work	
Weavers	.76	.63
Wet Finish — Wash. Mach. Oper. (Several near high figure)	.57—.81	.48—.53
Fulling — Cylinder Mill Oper. (Several near high figure)	.57—.80	.50—.55
Cartonizer Operators (Few near high mark)	.55—.75	.48—.52
Teazle Gigg Operators	.55—.80	.50—.55
Helpers	.55—.80	.45—.49

(Used section tenders or gang bosses at high figures. These eliminated or demoted to operator status and duties)

Savings in Non-Productive Departments

Study of the non-productive side of the business showed the possibilities of making many worthwhile savings. There was a lot of unnecessary "paper work" and duplication of effort.

The filling of customers' orders, production planning and the warehousing of finished stock, which were formerly handled by two good-size departments, have now been combined. This concentration makes it possible for 28 employees to do the work that formerly required 46. This saves $34,323 a year. The time required to handle an order has declined 59%.

In another division that formerly required the services of 124 clerks the work is now done by 82—a saving of 34% in the number of employees and of $55,524 a year. Improved and simplified methods of handling non-productive work in the weaving division reduced the staff by 35% and the pay-roll $33,050 a year. The cost finding methods were improved, thereby not only reducing the expense of cost finding as much as 41%, but also giving greatly increased accuracy and control.

These savings in non-productive activities reduced the payroll by more than $131,000. They were not the result, remember, of blind firing or arbitrary salary reductions but of carefully worked out betterments in methods. The results are better than before, and cost less.

That is true throughout the mills—not only in the non-productive departments but in the productive departments as well.

It is, as I have said, probable that many other mills could get similar results. It is worth trying by those farsighted men who do not favor further wage cuts, but must somehow reduce costs without adulteration of product and while maintaining not only quality but service.

IMPROVED MERCHANDISING THROUGH

Intelligent Styling

By L. G. Salembier
Salembier Studio, New York

◆ *Many stylers may not fully realize the exceptional opportunity of their position to bring better business to the firms they serve; nor many manufacturers realize that the styler's work may successfully extend far beyond mere creation of designs. To both classes of readers this article brings new light.*

VERTICAL integration of industry from the raw material to the finished textile product on the retailer's counter has been an ideal of textile economists for years. Minimizing of waste, saving in inventory, specialization in exclusive products, standardization of qualtiy, concentration on saleable material, quick reaction to consumer wants, etc., are a few of the benefits which should accrue through vertical combination. That they do not always appear where such mergers have been made is most likely due to imperfect financial structure or too cumbersome management. To gain the advantages of integration without change in financial structure or management, would seem desirable.

A brief analysis points the way: The success factors of integration lie largely in the realm of coordinated production, close consumer contact, and quick realization on promotional work, all of which focus on styling and merchandising. Actual ownership of raw material source and consuming outlet, therefore, seem unnecessary for a mill which could gain in some other way prompt and effective cooperation from those two sides of the business triangle. When self-interest prompts, cooperation comes quickly enough and a consulting stylist is in position to draw out this self-interest all along the line. By broadening his scope, the stylist may make himself indispensable to yarn man, weaver, finisher, cutter and retailer. He can coordinate the work of all of these and focus it upon the one thing that counts in any business enterprise—selling products at a profit.

For years the fabric mill has turned out what it hoped would sell, only to have it made a market football if taken up by buyers, or a white elephant if neglected by them. The cutter, the converter, or the jobber knows pretty well what he wants, and the stylist who works close to them can get acceptance for a mill's product even before it is made. These three groups of customers are closer to the consumer and as close to centers of style inspiration as the cloth manufacturer. It must eventually be a losing game for the mill which continues to play a lone hand, while others tie-in with their customers' wants before a yard of goods is made.

Even after goods have been made, some of which may become a dead weight in a mill's inventory because of color combination or texture which buyers cannot use with success for the original purpose of the cloth, the consulting stylist can help in developing a market for them. Even if they will not do for dresses, they may do for scarfs, trimmings, window drapes, beach pajamas, parasols, table covers, etc. Several mills have moved an apparently dead stock by finding out some purpose to which the fabric is fitted and pushing it with a stylist's cooperation in that new field or fields.

The stylist may tie-in the yarn mill to the general picture by finding the particular fancy twist which gives a saleable effect in fabric or by developing a fabric which will utilize what the spinner is producing.

Thus arises a flexible form of vertical integration in which all of the manufacturers retain their independence yet benefit as a unit from the vision and salesmanship of the stylist.

Timeliness of Style

Good style is the principal issue in profitable operation of a textile plant, and the trouble with many lines of style goods is that they have not kept pace with the times. It does not take the woman consumer long to realize that last year's skirt length, fabric pattern, or color combination is not the thing to be worn this year. Often she follows the style trend more quickly than does the executive who is responsible for the product of a mill. With him there is too often an unwillingness to discard what has proved popular in the past, yet to make his goods saleable he must be ahead of the style trend.

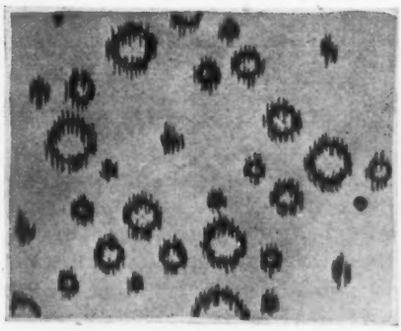
A most important element in style is knowledge of the trade to which the fabric goes. A fabric unattractive in the piece may be made up into a thoroughly stylish dress and such a fabric should of course go to the cutter rather than to the retailer. If the trend is toward pleated garments, the fabric offered must be adapted to this treatment, while plain draping garments demand another character of style. In developing patterns the position of the design must be such that the fabric can be cut to advantage. Patterns which do not match well at the seams or which have a definite top and bottom should be avoided as they cannot satisfactorily be made up on a quantity production basis.

Mere intrinsic value will not sell goods in the style field and inferior fabric may find a ready market because it happens to be in the current style picture. The average woman knows very well what she wants. The opportunity for profit lies in anticipating that want and satisfying it.

The stylist who is to coordinate the various steps of textile manufacture must know not only the consumer trend and the cutters' problems, but the limitations of profitable fabric manufacture. He must fit his ideas into the possibilities of mass production and avoid the development of too many lines or colors so that individual orders will not mean a loss to the mill because of their multiplicity and small individual volume. Concentration on the best styles to achieve maximum pro-

Service

The above shows the pattern resulting from superimposing the two designs shown at right. Mr. Salembier has applied for a patent covering this method of increasing number of styles in one run of goods through a printing machine. The adjoining sketch shows the three patterns used as complementary fabrics in an ensemble though each may successfully be used separately.



Attractive pattern of small circles printed on harmonizing ground.

Floral pattern printed in harmonizing shade upon same ground as design above.

duction at the lowest cost must be his aim. Technical savings must not be overlooked, and the opportunity, for example, of using the same warps for a variety of fabrics should be grasped where possible.

Creating Demand

The stylist who would work in the larger field we are here describing must be in a position to create demand through propaganda or other means for a particular style if necessary. If attractive models are produced and the fabrics rightly distributed by leaders in the cutting-up trade, demand can often be fostered. Many buyers follow the lead of acknowledged authorities. If leading cutters and cloth manufacturers could be united through the styler's service on certain types of merchandise as style leaders, the whole industry would benefit from increased stabilization.

To work successfully in this enlarged field the stylist should be equipped not only with his own personal experience in the various fields which his business would contact, but he must have continuing facilities for style inspiration from foreign centers and a staff of artists who can translate these inspirations into practical forms for the American market. It has been possible to sell prints from the original colored drawing of the pattern and it has been possible to sell yard goods by means of sketches of garments showing those particular goods in use. With a graphic representation of his new idea actually on paper, the stylist can often do a better selling job than the mill representative with swatch books.

A manufacturer anywhere along the line may set the stylist's services in motion. For the garment manufacturer, he can indicate how current fabric may be made into attractive garments or he can start with the garment, define the sort of fabric needed for its manufacture, and obtain a source of supply for it. For the converter, he can design new lines or find a market for slow moving stock. For the fabric manufacturer, he can perform a similar service and, in addition, advise new products or new uses for old ones. In this picture the retailer must not be lost sight of and close retailer contacts are important for the services outlined. There are examples of a complete merchandising plan involving design of fabrics and garments which were sold to the retailer before anything went into actual manufacture. Coordination of mill groups with distributors along these lines would work effective savings in cost, in addition to lending a surer tone to the whole range of mill operation.

Effective Mixing

DEMANDED BY WEAK COTTON AND HIGHER YARN STANDARDS

By Alfred K. Landau
Saco-Lowell Shops, Boston

WITH the gradual deterioration of the staple found in the cotton grown in the late crops, spinners and manufacturers have been forced to give greater attention to the mixing and blending of the stock. The demand for more effective blending and mixing has been fostered also by the urge for better and stronger yarn on the one hand and the increasing use of long draft on the other. Furthermore, mills have found that effective blending and mixing and better opening and picking pave the way for savings in purchasing cotton.

Among the chief requirements for successful mixing are (1) a thorough knowledge as to the actual staple, type, and character of the components of the blend; (2) the ability to forecast the manner in which the various grades will blend and work together; (3) the knowledge of the action of the various opening and cleaning machines on each different cotton used in the blend and the ability to anticipate any difference in procedure made necessary by the difference in the cotton; and (4) a correct forecast of the effect of the mixing on the carding and subsequent drawing operations, in order to secure a yarn with the required strength, color, and uniformity. As a rule there is not much tolerance allowed for staple variation, in spite of the fact that staple varies appreciably in accordance with local conditions.

To Determine Value of Stock

The less obvious characteristics of the staple, such as the diameter of the fiber and the natural twist, are more difficult to judge than the staple length, yet these two factors do, in a very great measure, determine that rather indefinitely named property called "character"—which is that indefinable something that enables the experienced spinner, as well as cotton man, to tell instinctively how the staple will run during the manufacturing.

Generally speaking, the best available way to determine the value of the staple is to put a small lot through the mill. This, however, is seldom done on account of the inconvenience entailed and the expense involved. It cannot be definitely assumed, however, that if quick and accurate means were available to show separately in a definite way the diameter and spirality of each staple in a mix, the effect of the combination would be satisfactorily estimated.

Yet, there is no argument that it pays and pays well to have a competent judge of cotton carefully examine each and every bale of cotton thrown down for a mix. This is desirable regardless of the size of the mix, as a gin-cut bale, or "curlt" bale, or one with waterpacked damage or unusually irregular staple, can tear up a mill for weeks at a time. There should be a standard well maintained, and any cotton falling short of the standard should be rejected at the time it is opened and not allowed to interfere with the running of the work.

In former years stack mixing was resorted to by those mills who desired the most effective results. This method gave the most thorough preliminary mixing and was believed to have the further advantage of allowing the cotton while in a loosened state to become more or less uniformly conditioned. This was the idea prevalent in past years. Mill executives of today know that this belief is not altogether sound, because research has demonstrated that the circulation of air through a high pile of cotton is practically non-existent and that while the cotton on the exposed surface may take up or lose a small percentage of moisture, the mass of the mix is not affected. Tests have been made wherein it has been shown that moisture on the stack mix varied from 9% on the outside to less than 4% in the middle of the pile.

The stack mix had another disadvantage. If a lot of 25,000 lb. was placed in the mixing bin and it was found to be unsatisfactory, it was indeed quite a task to remove the lot; and the separation of the trouble-causing bales was a physical impossibility. The only remedy was to lower their proportion by the addition of bales possessing satisfactory properties.

The next step in progress toward a better mixing was the use of the bale breaker as a mixing medium. The usual method pursued consisted of laying down the predetermined number of bales around the bale breaker and having the operative place a portion of each bale on the extended apron of the machine. However, the capacity of the average bale-breaker hopper was not over 200 to 300 lb. of compressed cotton. If there were twenty or more bales to the mix, there would be a very small portion of each bale in the hopper. While this condition would not be so bad from an operating standpoint, it rarely happens that the actual condition ever approaches the condition outlined. It more frequently happens that the operative will fill the hopper from four or five bales; so that, instead of having a mix from twenty bales, there is a series of small five-bale mixes, each one a trifle different from the next. The result is seen in the variation in weights and numbers, not only in the manufacturing stages of the work, but in the finished yarn. Improper mixing and blending is in a very large degree responsible for shaded cloth, streaky filling, and irregular weights.

It is frequently advisable in designing a blending and opening plant to make provisions for a certain degree of flexibility and to provide facilities which will permit the inclusion in the mix of cotton containing different amounts of trash and impurities, as well as to accomplish the blending of different grades of the same staple. Arrangements to secure this flexibility can be made when

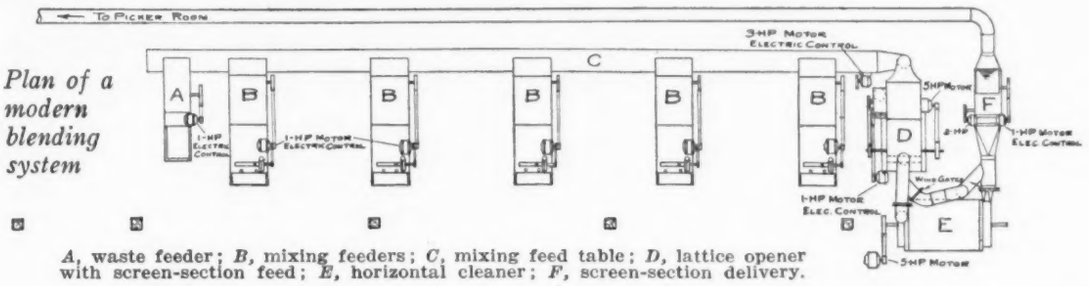
the installation is planned by providing for a series of by-passes which will permit the inclusion or exclusion of certain of the cleaning machines. This is necessary because some cottons will not stand the same processing as others without resulting in either excessive waste or damage to the staple, or both.

Sometimes it may be found by tests that the separate treatment of several components in the mix may be highly desirable. This can be easily accomplished if the needed by-passes were provided when the equipment was being installed.

The passage of the mixed raw stock through the entire cleaning range, or part of it, may result in irregularities in the processing; and in mixes of this kind careful scrutiny is needed to prevent damage, excessive waste, or faulty laps.

The whole mix should be thoroughly cleaned, well opened, and delivered uniformly to the distributor feeding the hoppers of the pickers. Unless proper facilities are provided to secure a uniform blend and a thorough and intimate mixture of the various staples in a mixed blend, there will be a decided tendency for the component stocks to separate. With certain waste stocks, this tendency is very difficult to overcome. It has been found very practical to run mixes containing card strips or comber noils so that they are cleaned and opened in a separate line and then blended in a system of blending feeders. In this manner it is entirely practical to expect and secure a homogeneous lap sheet which will be free from accumulations of the component stocks in spots.

Plan of a modern blending system



A, waste feeder; *B*, mixing feeders; *C*, mixing feed table; *D*, lattice opener with screen-section feed; *E*, horizontal cleaner; *F*, screen-section delivery.

The proper use of the blending feeder following opening and cleaning processes solves a difficulty which has been source of trouble in mixes of low cotton and waste.

In mixing cottons of various characteristics, the loss in carding or combing is worthy of great consideration, as an increase in the waste percentage above that estimated in costing the stock may result in dangerous losses and produce a totally different cost structure. This effect is doubly dangerous when the spread between cotton and yarns is narrow and the profit correspondingly small. The amount of loss can be determined by preliminary tests—the reliability and accuracy of which depend to a degree on the amount of stock used in making the test.

If the stock is combed, nearly all the fiber under a predetermined length will be removed; but in carding, the presence of an abnormally large amount of short staple will result in the loss of considerable cotton of a satisfactory length, since absolute fiber selection is beyond the function of the card. Therefore, in planning mixes with a considerable portion of waste or short staple, it is important to remember that the presence of an abnormal amount of short fiber not only increases the loss in short fiber but in the good fiber also, and at the same time has a very unsatisfactory effect on the general operation of the machinery in the subsequent processes. Further, it there is any appreciable proportion of long fiber present in the mix, the stock is not benefited by its presence and the manufacturing difficulties are increased, since carding can be much more efficiently carried on when the stock is regular in characteristics.

If, to allow for abnormal variations in fiber length, a reduction in the price of cotton is made which is only sufficient to cover the loss entailed by the increased waste in manufacturing; the difference is not sufficient to cover the loss created by manipulating irregular staples.

All cotton varies from bale to bale, regardless of where raised. Cotton from the same shipping point may have vastly different characteristics. Therefore, the use of cotton from the same localities is no absolute guarantee of equal value from the standpoint of the spinner.

Uniformity Through Careful Mix

The margin between a good working mix and one which may not run so well is narrow and the only manner to secure work which will run well uniformly is to insist on a mixing which has been carefully selected by competent classers and then blended in a manner best suited to the particular requirements of the cotton.

The present conditions of the yarn and cloth markets have had a tendency to raise the standards by which yarns and cloth are purchased. Buyers are well informed as to the physical characteristics of yarns and cloths, and there are many well-equipped and expertly staffed laboratories whose function is to scrutinize carefully all deliveries of finished products.

The various arts and industries which today consume large quantities of cotton goods have well-defined requirements and specifications which plainly state that the fabric intended for specific uses must have certain weight, tearing strength, and bursting strength. For certain trades, even the thickness of the fabric is specified. In order that these industries may be properly supplied without loss and claims for inferior deliveries, it is absolutely essential that the stock used in making the yarns and cloth be suitable in the first place.

There is now no question that one-process picking is here to stay. The success of this development in many of the outstanding mills of the world has reached such a point that no mill can afford to continue the operation of obsolete picker-room installations.

Inasmuch as the prime function of the picker is the production of a smooth and even lap, engineers now try to design opening and picking so that as much of the cleaning as possible can be done in the opening room. There is no question that the proper opening and cleaning of the stock before it reaches the picker room will permit adjustments to be made in the latter department which will improve the sheeting to an extent which would be impossible if a major portion of the cleaning were assigned as a function of the one-process picker.

Nine-Meter Sizings

FOUND DEPENDABLE FOR MEASURING SILK EVENESS

By Warren P. Seem
Julius Kayser & Co.

SINCE the publication of our studies in the Oct. 24, 1931 issue of TEXTILE WORLD, on the use of nine-meter sizings as a measurement of evenness, we have continued our researches and given the method every conceivable check. We find that we can now announce to the trade that the method has passed the development stage, has been thoroughly proved, and found to give a relative evenness evaluation on all sizes of raw and thrown silk, rayon, combination, spun silk, and cotton yarns. We also have reports from throwsters and knitters using the test, saying that they find it dependable for the selection of raw silk for sheer hosiery.

The test consists of the following steps: (1) sampling; (2) winding of the nine-meter sizings on a seriplane; (3) weighing of sizings on a torsion balance; (4) calculating the evenness; (5) reeling the average size on 2250 meters; (6) calculating the deviation in average size in per cent; and (7) calculating the evenness unit, consisting of the nine-meter evenness and deviation in average size. Fifty skeins are sampled, following the "Progress Report," formulated by Classification Committee of the Silk Association of America and that used by the Japanese government conditioning houses.

Winding Nine-Meter Skeins

Two panels are wound from each of 50 skeins on the seriplane board equipped with a Georgetown attachment which winds nine meters accurately. After winding, the apparatus separates the nine meters, so that the sizings can be cut off and twisted into short skeins suitable for weighing. On a ten-bale test 10 boards, or 100 panels, are used. Five nine-meter skeins are parted on each panel, or a total of 500 skeins from the 100 panels.

Fig. 1 shows the Georgetown apparatus attached to the side of the seriplane machine. Fig. 2 shows a small electric motor with a twisting hook which is placed on a rod below the board and used to twist the skeins. (This apparatus was designed by the Georgetown Silk Co., and is now being marketed by J. Laux & Sons Mfg. Co., Shavertown, Pa.)

Weighing of Sizing Skeins

The nine-meter sizings are weighed on a torsion balance, as this method is 25% faster than that of weighing 225 or 450 meters on the regular sizing quadrant. The torsion balance is graduated in milligrams, which is 1/50 of the denier weight unit, and as nine meters is also 1/50 of the sizing length unit, one gets direct readings in denier, and no conversion factors are necessary.

The weighings are scored on a Denominator adding machine, which counts the number of each size as it is scored by pressing the keys.

Fig. 1. Georgetown apparatus attached to seriplane machine

Evenness is calculated from the weight of the nine-meter sizings by a simplified form of the theory of least squares. (The details of this will be found in Oct. 24, 1931 issue of TEXTILE WORLD. A test is calculated on five-bale unit of 250 skeins to determine the uniformity of the lot.

Evenness Calculation

The procedure and formula to calculate the evenness are as follows:

1. Milligrams	2. Number Skeins	3. (1 x 2) Milligrams	4. Diameter in Microns	5. Deviation of Diameter Squared	6. (2 x 5) Total Squared Deviation Each Size
10	1	10	47	64	64
11	12	132	49	36	432
12	25	300	51	16	400
13	43	559	53	4	172
14	56	784	55	..	.....
15	65	975	57	4	260
16	31	496	59	16	496
17	12	204	61	36	432
18	2	36	63	64	128
19	3	57	64	81	243
Total..	250	3,553			2,627

$$\text{Average size} = \frac{3{,}553}{250} = 14.21 \text{ deniers}$$

The total number of microns in the 250 skeins is found by multiplying the number of skeins by the average microns; thus $250 \times 55 = 13{,}750$ microns. To this figure add the total squared deviation in microns, $2627 + 13{,}750 = 16{,}377$ microns.

$$\text{Unevenness } \% = \frac{2{,}627 \times 100}{16{,}377} = 16\%$$

$$\text{Evenness } \% = 100\% - 16\% = 84\%$$

(Use whole number nearest to average size)

Column 1 represents the actual weight to the nearest milligrams of nine meters and is therefore equivalent to the size (i.e., deniers per 450 meters.) Column 2 represents the number of skeins of each size. Column 3 consists of the product of Column 1 multiplied by Column 2, or the total denier of each and all sizes. Column 4 gives the diameter of the thread of a given size expressed to the nearest micron (See Conversion Table I for the diameter of other sizes). Column 5 represents the deviation in diameter, expressed in microns, squared; this is found by subtracting the diameter of each size from the average diameter at 14 denier and multiplying the amount of the deviation thus found by itself.

The example given under the form for nine-meter

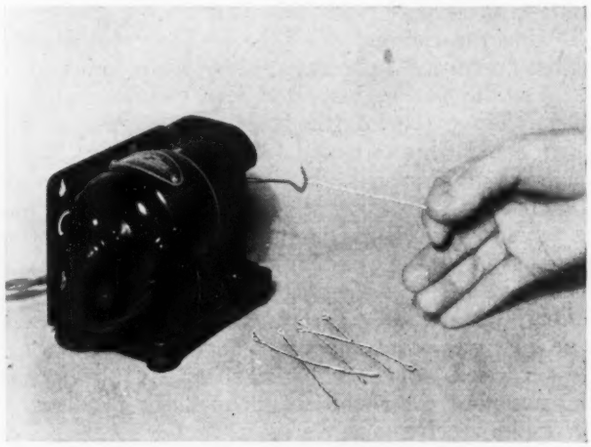


Fig. 2. Electric motor with twisting hook

sizings shows the average size as 14.21. If the nearest whole number, or size 14, is used, the diameter in microns is 55. Take a size of 10 deniers as an example. Its diameter is 47 microns. This deviates 8 microns from 55 microns, the average 14. This squarred is 8×8, or 64.

Column 6 represents the product of Column 2 multiplied by Column 5, or the total squared microns for each and the sum for all sizes. The size is converted to diameter in microns so as to make the percentage of evenness found applicable to all sizes of threads. Table I gives the sizes in denier converted to microns.

Deviation in Average Size

The term "Evenness" is applied to the variation in size within the length of the standard sizing skein. The term "Deviation" is applied to the variation in weight of the sizing skeins used to determine the average size of a lot.

As the reeling girls have acquired skill to reduce the deviation in average size by adding a number of extra cocoons to even up those running out, the evenness cannot be calculated on 225- or 450-meter sizings; therefore no useful information is acquired by reeling 225 or 450 meter sizings. To save time in reeling and weighing the small sizing skeins, 40 skeins of 2250 meters are recommended for average size on a ten-bale lot, calculating each bale separately. The skeins are weighed on a sizing quadrant using a five-ply reciprocating weight. Skeins are recorded in half deniers.

The deviation is calculated in per cent by the same formula as that used for the nine-meter sizing calculations as follows:

1. Size Deniers	2. Number of Skeins	3. 1 x 2 Denier	4. Size Microns	5. Deviation of Diameter Squared	6. 2 x 5 Total Squared Deviation
13	1	13	53	9	9
13½	3	40.5	54	4	12
14	1	14	55	1	1
14½	2	29	56	Average	..
15	1	15	57	1	..
15½	..	.....	58	4	..
16	..	.....	59	9	..
16½	1	16.5	60	16	16
17	..	.....	61	25	..
17½	1	17.5	62	36	36
Total....	10	145.5			74

$$\text{Average Size } \frac{145.5}{10} = 14.55 \text{ deniers}$$

$$10 \times 56 + 74 = 634$$

$$\text{Size Deviation } \% = \frac{75 \times 100}{634} = 11.8\%$$

$$\text{Evenness} = 100\% - 11.8\% = 88.2\%$$

Calculating the Evenness Unit

A silk showing an evenness evaluation by the nine-meter test of 80%, and having a range in average size of from 13 to 15 deniers on 2250 meters, or evaluated as 2% deviation or 98% evenness, gives decidedly better matches between leg and foot than a silk that has the same evenness value; but has a range in average size of 13 to 17½ deniers, or shows a deviation of 12%, or 88% evenness.

The uniformity of evenness in hosiery is only indicated when the co-efficients of evenness and size deviation are considered. This is determined from the product of the coefficients of evenness and size deviation per cent; thus:

$$80\% \times 98\% = 78.4\%$$
$$80\% \times 88\% = 70.4\%$$

The differential between the evenness unit was fixed at 5% for each grade, as it was found that silk used

Table I — Conversion of Deniers to Microns

Deniers	Microns	Deniers	Microns	Deniers	Microns	Deniers	Microns
8	42	51	106	94	144	137	174
9	44	52	107	95	145	138	174
10	47	53	108	96	146	139	175
11	49	54	109	97	146	140	176
12	51	55	110	98	147	141	176
13	53	56	111	99	148	142	177
14	55	57	112	100	149	143	177
15	57	58	113	101	150	144	178
16	59	59	114	102	150	145	179
17	61	60	115	103	151	146	179
18	63	61	116	104	151	147	180
19	64	62	117	105	152	148	181
20	66	63	118	106	153	149	181
21	68	64	119	107	154	150	182
22	70	65	120	108	154	151	182
23	71	66	121	109	155	152	183
24	73	67	122	110	156	153	183
25	74	68	122	111	157	154	184
26	76	69	124	112	157	155	185
27	77	70	124	113	158	156	185
28	79	71	125	114	158	157	186
29	80	72	126	115	159	158	187
30	81	73	127	116	160	159	187
31	83	74	128	117	161	160	188
32	84	75	128	118	161	161	189
33	85	76	130	119	162	162	189
34	86	77	130	120	163	163	190
35	87	78	131	121	163	164	190
36	89	79	132	122	164	165	191
37	90	80	133	123	165	166	191
38	91	81	134	124	165	167	192
39	92	82	135	125	166	168	193
40	93	83	135	126	167	169	193
41	94	84	136	127	167	170	194
42	95	85	137	128	168	171	194
43	96	86	138	129	169	172	195
44	98	87	139	130	169	173	195
45	99	88	139	131	170	174	196
46	100	89	140	132	171	175	197
47	101	90	141	133	171		
48	102	91	142	134	172		
49	103	92	142	135	173		
50	104	93	143	136	173		

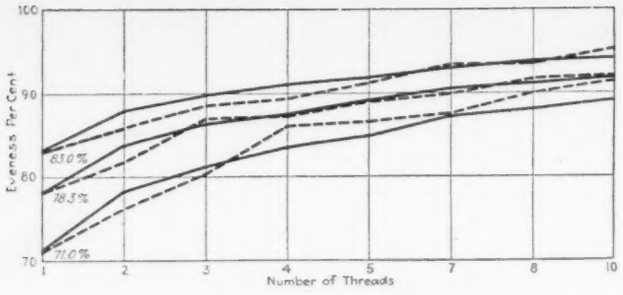


Diagram A. Represents three grades, averages of 100 actual tests. Heavy solid line represents theoretical Table II; and broken, actual test

within this range showed no appreciable difference in the uniformity of evenness in sheer knit products.

The evenness unit scale is as follows:

Grade	Special Reeling	AAA	AA	A	B	C	D	E	F
Evenness Unit, per cent	90+	85	80	75	70	65	60	55	50

Measuring Thrown-Silk Evenness

The nine-meter formula and method of procedure is used for thrown silk except that only 40 skeins or bobbins are sampled, and the evenness is based on 200 sizings. Size deviation is not used. Table II shows the evenness to be expected on multiple threads from raw silk showing an evenness unit value as given in Column 1 of that table.

Studies were made on actual nine-meter sizings on two- to ten-thread silks, using the same sample skeins as were used in the raw test. The results are given in Diagram A, which represents three grades, averages of 100 actual tests. The heavy solid line represents theoretical Table II; and the broken line, actual test.

Inquiry has been made as to whether silk can be reeled to meet the Evenness Unit Values. My answer is "Yes," as it always has been done. The best proof which I can offer is that many clear stockings are produced on all threads, but the trouble is that all grades of raw silk lack uniformity within the grades, and this causes excessive seconds.

There is every evidence that many filatures are shipping the "run of the filatures" in ten-bale lots, and no attempt is made to keep separate the evenly reeled skeins from the uneven skeins. The filature must recognize that we require uniformity throughout the lot to produce a high-class sheer product and satisfy the consumer.

Raw silk is being greatly discredited and depreciated in value because a substantial percentage of chiffon stockings must be sold as irregulars due to streaks caused by fine and coarse threads. This is due to a lack of uniformity and irregular grading of evenness. Silk has certain qualities far superior to rayon, but if the filatures persist in shipping the run of the filature, and do not assort their reeling into uniform grades within the required evenness range, they will encourage the rayon producers to make a yarn which will meet the hosiery requirements, and then it will be too late to save the raw-silk industry.

We suggest to the filatures that they adopt the nine-meter sizings to check their reeling girls, and the 2250 for average size, and grade their silk accordingly. From the table on multiple threads they will be able to determine for what threads their product is suitable. We find that a 90% evenness on multiple threads is a reasonable expectation.

The motive which prompted us at Julius Kayser & Co. to develop the nine-meter test was not to meet our own requirements, as we still use the gage test for evenness and cleanness and find it satisfactory on raw silk from 10/12 to 20/22 deniers. Rather, our motive was to prove that our rejections were justified and sustained, not only by our product, but by another test on the raw silk. Besides, we recognize that as long as the filatures deliver the run of the filatures, there will be no improvement, and that we owe it to the filatures to show them a way to test and classify their product so that it will meet the requirements of the hosiery industry, please the buyer of hosiery, and restore the confidence of the public in the superior qualities of raw silk.

During the last six years the seriplane panel method has been accorded a popular trial by a sympathetic trade, including the filature, inspector, Raw Silk Exchange, and buyer. Three sets of standards are now in use and a fourth standard is proposed. I will not unduly lengthen this article to discuss the merits of each set of standards, as, no matter how perfect the standard patterns are made, the measurement is crude and cannot correctly or uniformly evaluate the three highest grades of raw silk.

To this statement the writer desires to add the information given to him by throwsters, knitters, and weavers, representing the consumption of about 300,000 lb. of raw silk per week, which is to the effect that the seriplane does not meet the requirements of sheer products, and the results are frequently erratic.

Some of these people have equipped their laboratories to make the nine-meter test. Others have placed orders for equipment. Large filatures have sent representatives repeatedly to study the progress of the test and promised a trial in the filature.

The apparent need shown by the interest taken in the publication of our studies on evenness has prompted us to go a step further and give a public invitation to the National Association of Hosiery & Underwear Manufacturers, knitters, not in the association, and throwsters serving the trade to study the nine-meter and size-deviation methods.

As the winding of the nine meters has been applied to the seriplane, this makes it possible to study the panel-pattern method and nine-meters on the same silk.

The method has been properly presented to the Raw Silk Classification Committee and to the Japenese Government Conditioning Houses. It now remains for a group of manufacturers, interested in the uniformity of raw silk, who recognize the urgent need of a dependable method and are familiar with the requirements and losses in hosiery manufacture, to promote and cooperate in a study of the nine-meter evaluation with the authorized committees and institutions.

Table II — Evenness To Be Expected on Multiple Threads

Raw Silk Evenness Unit Per Cent	Multiple Threads 2	3	4	5	6	7	8	9	10
90	92.9	94.2	95.0	95.5	95.9	96.2	96.6	96.7	96.8
85	89.4	91.4	92.5	93.3	93.8	94.3	94.7	95.0	95.2
80	85.9	88.5	90.0	91.1	91.8	92.5	92.9	93.3	93.7
75	82.3	85.6	87.5	88.8	89.8	90.6	91.2	91.6	92.2
70	78.8	82.7	85.0	86.6	87.8	88.7	89.4	90.0	90.6
65	75.2	79.9	82.5	84.4	85.7	86.8	87.7	88.4	89.0
60	71.7	77.0	80.0	82.2	83.7	84.9	85.9	86.7	87.4
55	68.1	74.0	77.5	79.8	81.6	83.0	84.1	85.0	85.8
50	64.6	71.1	75.0	77.6	79.6	81.1	82.3	83.4	84.2

Filling-Backed Cloths

CORRECT AND DEFECTIVE STITCHING FOR TWILL AND BASKET WEAVES

By R. A. C. Scott

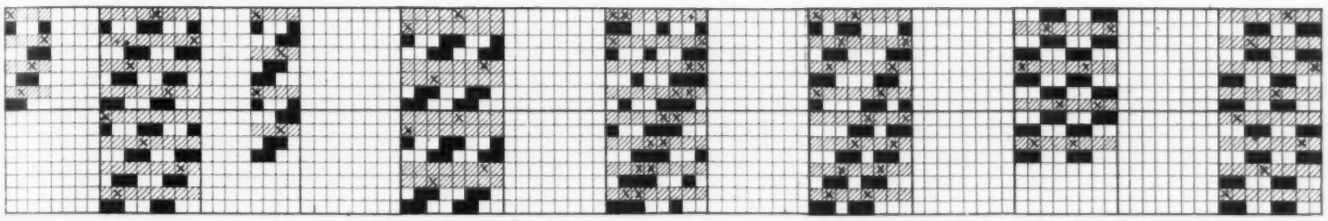


Fig. 16 *Fig. 17* *Fig. 18* *Fig. 19* *Fig. 20* *Fig. 21* *Fig. 22* *Fig. 23*

◆ *Various methods of distributing the binders or stitchers through the weave in designing both filling-backed and warp-backed fabrics and several examples of filling-backed design were illustrated and described by Mr. Scott in our June issue. In this, the second article of his series on backed, double, and treble cloths, he continues the discussion of filling backing. In the next article he will take up filling-backed, warp-faced weaves.*

THE examples in Figs. 16, 17, 18, and 19 illustrate different methods of backing the four-harness twill. In Fig. 16 the picks are arranged one face to one back, and the twill order of tying is employed. This is the well-known crow-back double weave, the underside being one warp and three filling twill, which gives a back equally as firm as the face. When men's worsted suitings were of a much heavier texture, this weave was commonly used, owing to its firmness and similarity of appearance on both sides of the finished cloth.

Fig. 17 is also arranged one face to one back; but the stitching is on the sateen order, which gives a much looser and softer cloth on the back than on the face. This is generally known as a sateen-backed cloth. The sample in Fig. 18 is arranged two face to one back; and, although often used in practice, it is defective on account of being stitched on alternate threads, an arrangement which tends to cause a variation in "take-up" on the odd and even threads. For the same reason Fig. 19 is also imperfect, but it shows the best method of stitching the four-harness twill when arranged two face to two back.

Reversed Order

Figs. 20 and 21 employ the same weave with reversed order of intersections for face; i.e., Fig. 20 is three-up, two-down, one-up, two-down, move-one, whereas Fig. 21 is three-down, two-up, one-down, two-up, move-one and shows different orders of stitching. The former will show on the face of the cloth the three-up, two-down, one-up, two-down fancy filling twill, while on the back the six-up, two-down, move-one filling twill will be produced.

The cloth's under side, as a consequence, will be looser and softer than the face and will give a distinctly different effect. The face appearance of the latter, as already stated, will be the reverse of Fig. 20; and the back will show a weave formation of four-up, one-down, two-up, one-down, move-one, which, it will readily be seen, is of a firmer order of intersection, due to the double stitching arrangement. The underside in this case, therefore, is about as firm as the face and would not be so soft and pliable in handle.

Basket Weave

Fig. 22 is an example of arranging the basket weave two face to one back. It will be seen in this connection that the design is so arranged that the backing picks are placed between two face picks that are in the same shed and not between the two picks that cut with each other. In this way each backing pick is entirely covered by two face picks, one on each side. An example of the same weave arranged one face to one back is shown at Fig. 23. In this case, however, it is possible to arrange only half of the stitches so that they are entirely covered. The remaining stitches are covered on one side only by the face filling float, and it is important to note that the partially covered stitches should always precede the covering pick. If this is adhered to, the subsequent beating up of the covering pick will better conceal the stitch than if the tie or stitch follows the covering face float.

Lay-Motion Adjustment

ON SILK AND RAYON LOOMS

By H. E. Wenrich

AMONG the primary motions of a loom contributing to poor merchandise when disregarded can be considered the lay motion. This mechanism, which is often referred to as the "beating-up motion," is many times left to do its dirty work unnoticed by weaver and fixer alike. A fixer may have the shedding and picking working perfectly, and still the loom will turn out seconds due to needed adjustment on the lay.

Much trouble is caused by a defective lay motion. As the lay is brought forward and is beating in the pick, double picks, broken picks, shires, set marks, and loose marks may be caused. Ends out, floats, misspicks, skipped ends, and hang knots are the result of trouble which occurs while the lay is on the back position, where it becomes the medium on which the shuttles travel from box to box. Other less common defects may also be caused at times by a defective lay motion.

The article on picking which appeared in TEXTILE WORLD, June 13, 1931, illustrates in Fig. 3 the proper method of timing the crank arm. This timing therefore is correct as regards the motion of the lay. The necessary adjustments on the lay do not require timing with other parts of the loom, but the other primary and secondary motions of the loom are usually timed in conjunction with the motion of the lay after the crank arm has been timed with the bottom shaft.

The connecting arm, shown at *A* in Fig. 1, which conveys the motion of the beat-up to the lay, may be of wood or iron. On some looms it consists of one piece; and on others, of two. The stud *A*1, which fastens the connecting arm *A* to the lay sword, is bolted in the hole *A*2, the head of the stud resting against the offset *A*3. The opposite end of the connecting arm is fastened to the crank arm of the crankshaft. The steel crank-arm strap *B* is fastened to the arm *A* with the iron washer *B*1 and bolt *B*2. This same connection in principle is used in fastening the end of the arm *A* to the stud *A*1, the exception being that the crank-arm strap *B* for this end is smaller.

The connecting arm *C*, with the arm straps bolted together with a long bolt as at *C*1, makes for an easy adjustment to the lay. The advantages of this type of crank-arm strap are obvious, and it should be used for replacements whenever possible. To adjust, merely loosen the two nuts *C*2, next taking up the loose play in the straps by adjusting the nuts *C*3.

Fig. 2 affords a side view of the lay motion. At the bottom of the lay sword, which is secured to the lay-sword foot *G* with two bolts *G*1, a setscrew is sometimes used for adjustment, as at *G*2.

If the loom is making shires, the crank-arm straps *B* may be loose and need tightening. If there is considerable play, the result is that, after the lay is driven forward placing the pick in the shed, a short jerk takes place when the lay is pulled backward for the next pick, the jerk amounting to the distance of the loose play. This play may be but a trifle, but at the same time a defect will be the result.

When cracks appear on only one side of the woven cloth, even if extending half the distance in from one side, it will be generally found that but one side of the lay motion needs adjustment. In adjusting the loose play, do not make the straps too tight; they should be just tight enough to take up the play.

One quick method of taking up the loose play is illustrated in Fig. 2 and is conducted as follows: Insert a screwdriver between the stud and lay sword as shown. Bring the lay forward and place wrench or block of wood at position *F* between breast beam *E* and the lay. Place the brake on to hold tight. Next loosen the bolts on the crank-arm straps *B*. Push the screwdriver down hard, but do not force with hammer or other tool. Next tap the crank-arm strap on the crank-arm shaft with a hammer as shown. Tighten up the two nuts, and the job is completed.

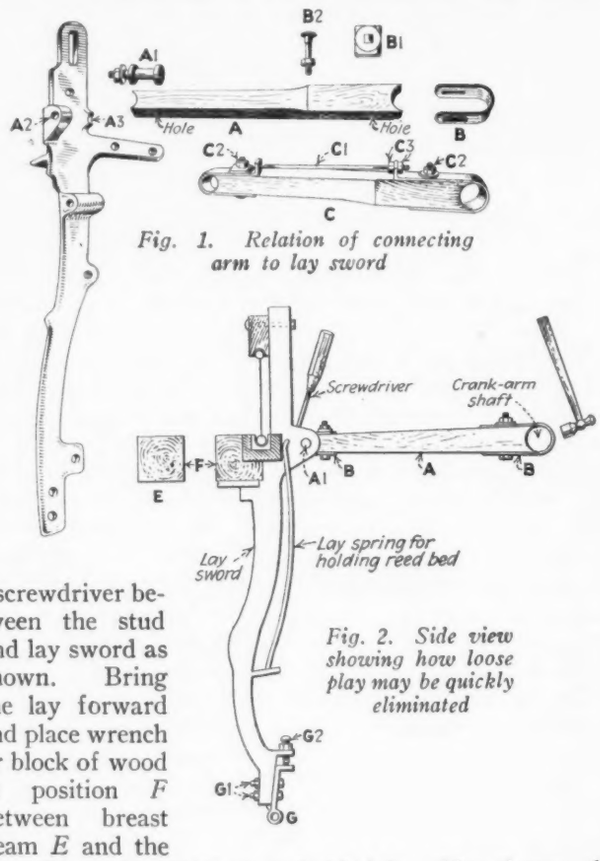


Fig. 1. Relation of connecting arm to lay sword

Fig. 2. Side view showing how loose play may be quickly eliminated

If the connecting arms are worn down at point of contact with the stud or crank arm, a new connecting arm *A* should be placed on the loom, as the old one will make the one side out of alignment with the opposite side. [In the next instalment of this article Mr. Wenrich will describe several additional lay-motion fixes which, although simple, will last for years.]

Double-Faced Velvet

NEW "TRANSPARENT" DRESS FABRIC

By Maurice N. Roux

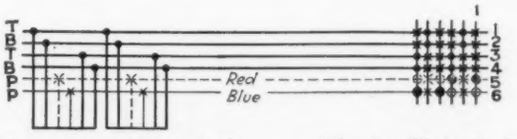



Fig. 1. Drawing-in draft

Fig. 2. Chain draft

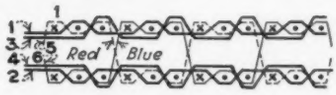


Fig. 3. Cross-section before cutting

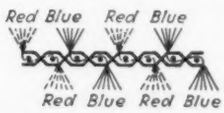


Fig. 4. Cross-section after finishing

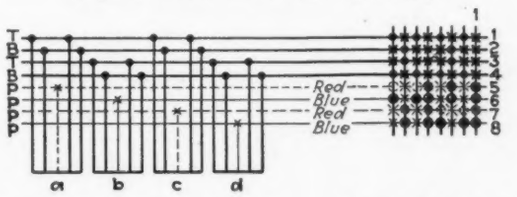


Fig. 5. Drawing-in draft for second fabric

Fig. 6. Chain draft for second fabric

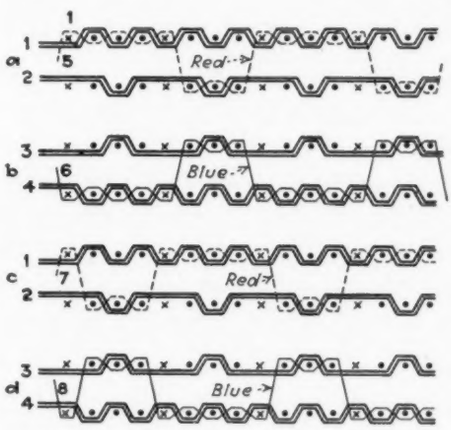


Fig. 7. Cross-sections of second fabric

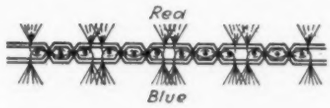


Fig. 8. Fabric with face a different color from back

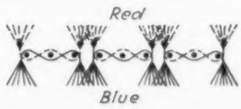


Fig. 9. Pile warp threads shown separately

WITHIN the last few months there has been placed on the market a new type of dress fabric. The principle of weaving is by no means new, but the design and intended use of the fabric differ from those of fabrics similarly woven in the past. Double-faced velvets have for many years been on the market, but utilized mainly for draperies.

Details of one of the simplest double-faced transparent velvets are illustrated by Figs. 1 to 4. [Pile threads were originally drawn colored as indicated.] When the cloth is delivered from the loom, it resembles the ordinary type of velvet: that is, there is pile only on one side. It will be noticed, however, that in Fig. 3 the first, fourth, seventh, and tenth picks are marked as *x* and that the ground warp does not pass over any of these picks. Only the pile is raised over them. Since the pile is woven with the "W" weave, it can easily be seen how the result illustrated in Fig. 4 can be obtained by lifting from the back of the fabric all the picks marked as *x*, thus taking with them one half of the pile loop.

The picks to be removed are not woven with the selvage but with the temple edge. This fact makes it a simple matter, after the cloth has been stretched tightly over a table, to cut the picks near the selvage and pull them from the back of the fabric. This operation is, of course, done by hand, and that is the reason why the cost of the fabric is so high—that and the fact that the cloth must pass twice through various finishing operations, once for each side. There is also a considerable amount of waste, because all filling removed must be rejected. The most economical method of weaving this fabric is with a box loom.

The construction of this fabric may be as follows: Ground warp, 4056 ends of three-thread 13/15 organzine; pile warp, 2028 ends of 100-denier rayon; filling, 144 picks per inch in the loom, 96 picks per inch in finished fabric; reed, 52 dents per inch, 6 ends per dent; selvages, 50/3 ends each.

Figs. 5 to 9 illustrate a second type of double-faced transparent velvet. This construction makes it possible to obtain a fabric having different color for each face. Figs. 8 to 9 show that both ends of alternate pile ends are turned toward the same face. Fig. 7 illustrates the cross-sections of one repeat of the drawing-in draft. The weave repeats in ten picks, as is shown at Fig. 6.

A variety of color combinations is possible in this type of cloth. One may use acetate for one face and viscose for the other, or may use rayon and silk or rayon and schappe. With the fabric illustrated at Fig. 4 certain effects are possible if alternate ends of various yarns are used or if the pile is skein dyed in a suitable way.

Photograph Your Hosiery

FOR POST-MORTEMS

By H. C. Roberts

POST-MORTEM examinations are the most useful means that have been known to science to determine the cause of death of man or animals. The progressive manufacturer follows the same method to determine mistakes and causes of faulty merchandise. One large woven-goods manufacturer has a meeting each afternoon in his cloth room to fix the responsibility for all the seconds made the preceding day. This method proves satisfactory for a weaving mill making gray goods, but falls short of meeting the conditions in a hosiery mill. In a hosiery mill, the causes may be more obscure, and fortunately do not repeat at such frequent intervals. Most hosiery is made of finer yarn, and the defects are more difficult to see. Many of these can be observed only minutely under a microscope.

The microscope, of course, is an instrument that requires skillful manipulation. It is delicate, and the least movement will throw the object being observed out of focus. At a meeting of overseers it is difficult to demonstrate the defect so all can see.

Fortunately, a magnification of ten diameters or less will serve to make prominent most of the defects found in hosiery manufacturing. It is possible to use a camera fitted with a low-power microscope lens (48-mm. objective) and see clearly those portions of the goods where the defect occurs. More area can be observed at one time; and, if a 5x7-in. camera is used, the defect is projected on the ground glass of this size. A photograph can easily be taken and a permanent record made. Many mill men can study a photograph with less eye fatigue and learn more from it than from a casual view of the defect through a microscope.

The equipment is simple and moderately priced. It consists of a vertical camera with 48-mm. iris objective, a 6-in. focal-length lens, lights, and a simple method of mounting the object to be observed. Several pieces of clear glass, a few sheets of differently colored paper, an embroidery hoop, pins, thumb tacks, etc., make up the mounting equipment. The glass is used to keep the fabric flat and pressed out smooth. The embroidery hoop serves the same purpose and is more useful in certain cases. The colored paper is used to make contrasting backgrounds. For example, if the hosiery is white or a light color, a piece of black paper will make the threads stand out better. If the goods are dark in color, a piece of white paper or some light color will bring out the objects.

The 48-mm. objective will permit magnifications of about ten times the natural size, and the 6-in. focal-length lens will make possible a picture from half the natural size to nearly twice the size.

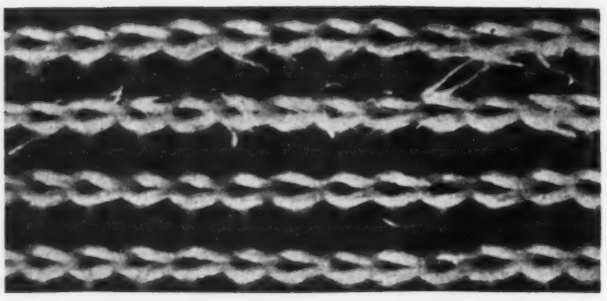


Fig. 1. Broken filaments caused by rough needle. Notice how they follow one of the wales

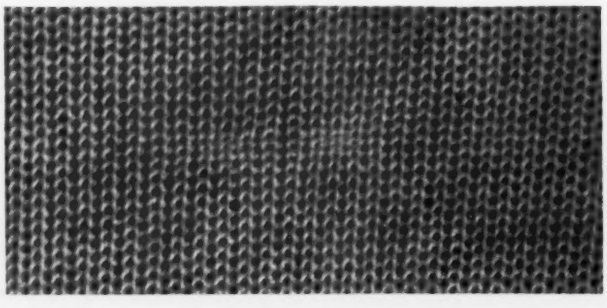


Fig. 2. This defect appears to be a soap curd or a deposit in the stocking

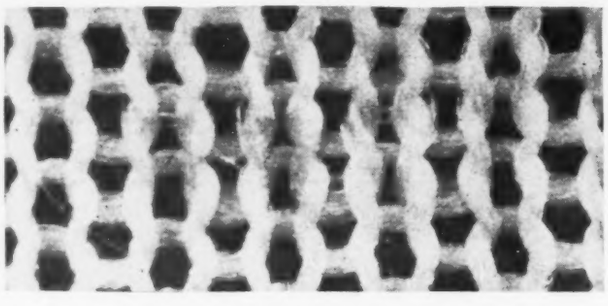


Fig. 3. Enlargement of Fig. 2. Notice how these defects now appear to be threads of large diameter, probably caused by a long knot in one of the filaments

The stocking shown in Fig. 1 is a five-thread tram just as it came off the machine. To the naked eye a line appears to be running vertically up and down the goods. It appears rough, and in certain lights a fuzz can be seen. When magnified about ten times, as in the case of this figure, it is plainly seen that the nature of the defect is broken filaments which follow one wale and were caused by a broken or rough needle.

In Fig. 2 the defect is a little more obscure than in the first instance. The photograph was taken about three times the natural size. Two cloudy spots are seen, and it is difficult to tell just what they are. They may be a defect in knitting or they may be two specks of soap or foreign matter that the goods have picked up. In order to find out more about this defect, a picture is taken at a greater magnification. In Fig. 3 it is seen that the defect is due not to foreign matter but to threads of larger diameter than the balance of the goods. A few loose filaments are seen in the affected portion. This would lead one to believe that the defect was a knot tied in one of the threads while the tram was being made. [In later articles Mr. Roberts will analyze other defects with the help of the camera.]

Knitted Men's Wear

PRODUCED AT LOW COST ON SPRING-NEEDLE CIRCULAR MACHINES

By A. Ward France

Fabric knitted and finished as described

ONE of the best types of knitted fabrics for the men's-wear trade is made with a combination of block wheels and cut pressers on a spring-needle circular knitting machine. This produces a fabric that very closely resembles a woven fabric in its ability to withstand stretch and in the density of the face nap. In fact, it so closely resembles the woven cloth that it is very hard to tell the difference except by a close examination or by the absence of the selvage if in the piece. The advantage of low cost favors knitting.

The arrangement of feeds to produce this type of cloth is as follows: first feed, block wheel for face thread (finish side of cloth), plain presser for back thread; second feed, block wheel for face thread, cut presser for back thread; third and fifth feeds like first and fourth, and sixth like second. The two-miss one-press is the best combination for the block wheels and cut pressers. With this combination it is possible to get a right-hand twill on both face and back, although the finishing covers these up to a large extent. Setting for pressers follows:

	Block Wheels	Pressers	
first	feed . . x	o o o	plain
second	feed . x .	. o .	cut
third	feed x . .	o o o	plain
fourth	feed . . x	. . o	cut
fifth	feed . x .	o o o	plain
sixth	feed x . .	o . .	cut

The cross represents a block or press, the circle represents a press and plain feed, and the solid dot represents a miss in either.

For the fabric illustrated there were 6 2/3 needles per inch around the cylinder, which was 35 in. in diameter. The actual total number of needles was 708. The stitch was measured with 9 in. of wire and was as follows: plain feeds, 23 needles; cut-presser feeds, 26 needles; block-wheel feeds, about 46 needles.

From the setting it will be seen that the plug in the block wheel always comes in contact with the press in the cut presser on the second, fourth, and sixth feeds. This is very important and is the reason why the two-miss one-press is the best combination. If this does not occur, the block wheel or face thread will not be held to the cloth and a float will occur at that point. The one-miss one-press has also been used, but the face is not so smooth as in the former case.

The use of cut pressers almost doubles the courses per inch and makes a very dense face. It also makes very tight cloth even before finishing, the only stretch being a little lengthwise. This doubling of the courses per inch changes the size of yarn commonly used for knitted cloth. For a good 30-32-oz. cloth, 1¾-run for face and back gives the best results. A good stock combination is 25% wool and 75% fine garnett. The wool should be a good felting type, such as eight-months Texas, but this needs carbonizing in the piece. Since most knitting mills cannot do this carbonizing in the piece, a high "A" pulled wool can be used.

The piece comes from the knitting machine weighing about 38 oz. and is about 90 in. wide or 45 in. double. It is mended in the usual manner. No back thread knots can be cut, or holes will result. Face threads may be cleared up and knots cut off—or, better, cut through.

The pieces are fulled in the grease and two pieces are started in a side. They are taken out when the shrinkage is about 3 in. to the yard, measured by regular yard strings. The width should be 29 in. double. If the pieces shrink up in width too fast, they will have to be run singly. It is best to run the mills open to get a longer run and better cover. A soap consisting of 6 oz. of palm-oil soap and 4 oz. of soda per gallon of water is suitable for the fulling. The time in the mill should be about two hours, depending on fulling qualities.

After being washed, the pieces are dried to 58 in., to finish 56 in. If upright dryers are used, the pieces are slit after drying; but if wide dryers are used, they are slit after extracting.

The napping is done on a double-acting napper with the energy increased until the pile is quite full. Then the nap is felted in by running the rolls in neutral. The piece is next sheared, brushed, pressed, and steamed.

It is best to have the piece through-lighted while being examined, for sometimes very small holes occur which can be mended on the back without showing. It will be found that the final measuring shows no shrinkage in length, but a loss in weight of about 18%.

USE OF RUBBER COMPOUNDS SOLVES MANY

Corrosion Problems

◆ *At a recent meeting of the American Society for Testing Materials, H. E. Fritz and J. R. Hoover, both of the B. F. Goodrich Co., presented a paper summarizing the industrial applications of rubber in resisting corrosion and avoiding contamination. The following article is an abstract of those parts of the summary which are of particular interest to engineers and plant executives in the textile industry.*

TOO much emphasis cannot be placed upon the fact that rubber compounds are designed for specific uses; and that they can be bonded to many other structural materials with practically integral adhesion. When rubber is applied to problems of industry, it is of utmost importance that the correct design of equipment be chosen. Therefore it is only through intelligent cooperation between the engineers using rubber and the engineers designing it that the best advantage can be taken of this versatile engineering material.

Outline of major uses of rubber for resisting corrosion or preventing contamination follows: (1) Process equipment including rubber-lined tanks and tank cars; pipes, valves, and fittings; drums and barrels; pumps, fans, and blowers; centrifugal baskets; and rubber bearings. (2) Transmission, elevator, and conveyor belting. (3) Gaskets and caulking. (4) Hose and tubing for acid, air, oil, water, etc. (5) Molded goods, such as dye sticks, bleach rods, bobbin holders, and candle filters. (6) Rolls of various types. (7) Clothing of soft rubber, including boots, shoes, gloves, and aprons. (8) Sheet rubber for chute lining, flooring, etc.

The accompanying table has been compiled to show some of the industrial chemicals [used in the textile industry] which are being successfully handled in contact with rubber. The limiting conditions of concentration and temperature for each material are shown.

The outstanding exceptions to the general chemical inertia displayed by properly designed rubber compounds towards inorganic material are nitric acid, concentrated sulphuric acid, chromic acid, and the dry halogens. In the organic field, we find that rubber is swollen and deteriorated in various degrees by nearly all liquid fatty acids, dry oils, cyclic aliphatic liquids, and aromatic solvents. Especially severe are the effects of such solvents as benzene, carbon tetrachloride, ethylene dichloride, and carbon disulphide. Mineral oils and greases seriously affect most soft rubber, but are satisfactorily resisted by true hard rubber, and by some flexible hard-rubber compounds. Another serious limitation to the use of rubber in chemical service is temperature. Above 150° F., the effects of oxidation, diffusion, and absorption become aggravated; and rubber's useful life shortened.

Recognizing certain distinct advantages, and certain limitations in each type of rubber—soft and hard—under conditions of variation in temperature; liability of shock, impact, or gouging; and abrasive wear; technologists have produced a practical combination of the two types which can be bonded to steel for lining tanks, etc.

It has recently been found possible, for certain types of chemical process equipment, practically to remove the temperature limitation by combining rubber advantageously with other engineering materials. For example, in a recent design of heavy-duty tanks, where hydrochloric and sulphuric acids are used at temperatures ranging from 150 to nearly 250° F., a sheathing of brick 4 to 8 in. thick protects the rubber lining.

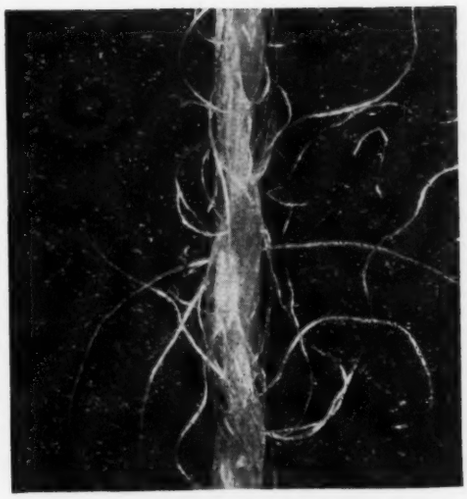
Chemical Resistence of Rubber Compounds

Material	Concentration by Weight	Maximum Temperature Deg. Fahr.	Degree of Vulcanization Hard or Soft Rubber	Design of Compound; for General Chemical Service or for Specific Service
1. Inorganic acids				
Hypochlorous acid	Up to saturation at atmospheric pressure	100	Soft	Specific
		150	Hard	Specific
Hydrochloric acid	Any concentration	150	Either	General
Sulphuric acid	Up to 50%	150	Hard	General
			Either	General
Sulphurous acid	Up to saturation at atmospheric pressure	150	Hard	Specific
2. Inorganic salts and alkalis				
Aluminum chloride	Up to saturation	150	Either	General
Aluminum sulphate	Up to saturation	150	Either	General
Alums	Up to saturation	150	Either	General
Ammonium chloride	Up to saturation	150	Either	General
Ammonium hydroxide	Up to saturation	100	Hard	General
Ammonium sulphate	Up to saturation	150	Either	General
Calcium bisulphite	Up to saturation	150	Hard	Specific
Calcium hypochlorite	Up to saturation	150	Soft	Specific
			Hard	General
Caustic soda	Up to saturation	150	Either	General
Caustic potash	Up to saturation	150	Either	General
Copper chloride	Up to saturation	150	Hard	General
Copper sulphate	Up to saturation	150	Either	General
Ferric chloride	Up to saturation	150	Soft	Specific
			Hard	General
Ferrous sulphate	Up to saturation	150	Either	General
Potassium dichromate	Up to saturation	150	Hard	General
Sodium bisulphite	Up to saturation	150	Hard	General
Sodium chloride	Up to saturation	150	Either	General
Sodium hypochlorite	Up to saturation	150	Soft	Specific
			Hard	General
Sodium sulphite	Up to saturation	150	Either	General
Sodium sulphite	Up to saturation	150	Either	General
Tin chloride	Any aqueous solution	150	Either	General
Zinc chloride	Up to saturation	150	Either	General
3. Organic materials				
Acetic acid	Any concentration	150	Hard	Specific
Acetone	Any concentration	150	Soft	Specific
			Hard	General
Aniline hydrochloride	Any concentration	150	Either	General
Castor oil		150	Hard	Specific
Coconut oil		150	Hard	Specific
Dyestuffs		150	Hard	Specific
Ethylene glycol	Any concentration	150	Either	General
Formaldehyde	40%	100	Hard	Specific
Formic acid	Any concentration	100	Hard	Specific
Glucose	Any concentration	150	Either	General
Glue	Any concentration	150	Either	General
Glycerin	Any concentration	150	Either	General
Lactic acid	Any concentration	150	Hard	Specific
Methyl alcohol	Any concentration	150	Soft	Specific
			Hard	General
Mineral oils		100	Hard	Specific
Olive oil		150	Hard	Specific
Soaps	Any concentration	150	Either	General
Tannic acid	Up to saturation	150	Either	General
Triethanolamine	Any concentration	150	Either	General

Worsted-Yarn Thickness

MEASURING VARIATIONS TO FIND LEVELNESS

By G. R. Stanbury
Wool Industries Research Association



Beardiness in worsted yarns renders thickness measurements difficult

◆ *At the recent annual conference of the Textile Institute at Royal Leamington Spa, England, several methods for determining the levelness of worsted yarn which have been devised at various times by different research men and organizations were outlined by Mr. Stanbury. The following article is an abstract of his paper.*

THE most common method of estimating the variation in thickness of a yarn is the visual method. This method will undoubtedly remain the most popular among practical men, but is inadequate for research purposes.

Frenzel introduced one of the first instruments for the continuous recording of yarn diameters. A small "feeler" is displaced according to the thickness of the yarn, and the displacements are recorded autographically. The difficulty is in the construction of a "feeler" light enough to follow the variations in thickness of a worsted yarn without appreciably compressing it.

Oxley made use of the inverse correspondence between twist and visual thread diameter. Yarn is drawn between a pair of casehardened shoes, the motion of the top shoe making a record under high magnification.

Another method has been used by different workers whereby the yarn is made to move one plate of a condenser of an oscillating valve circuit. This change in capacity produces a heterodyne wave with another circuit tuned to the same frequency, and this resultant beat note can be rectified and recorded.

In the photo-electric method, a shadow cast by a short length of yarn affects the amount of light falling on to a photo-electric cell, and the resulting current is measured and recorded. This has been found to be the most suitable method for worsted yarns, since no constraint is applied to the yarn at all during the recording.

A method similar to the previous one has been devised by Steward. In this instrument the variations in the diameter of the yarn are measured by passing it at uniform tension in front of the slit of a thermopile.

Matthew has very recently applied the diffraction method to the measurement of yarn diameters. When a light source such as a slit is viewed through a bundle of fibers arranged approximately parallel to one another and to the slit, a series of alternate light and dark bands is seen extending symmetrically on both sides of the source in directions perpendicular to the axes of the fibers. From the theory of diffraction, a known relation exists between the separation of the bands and the diameter of the fibers. The experiments so far have been carried out with flax yarns, which have definite edges, and the method would probably be unsuitable for worsted yarns.

A very common and in many cases useful method for measuring the regularity of a yarn is to calculate the coefficient of variation of a number of single-yarn strength tests. The formula is as follows:

$$\sqrt{\frac{\text{mean square deviation}}{\text{mean}}} \times 100\%$$

One disadvantage of using the coefficient of variation is that it gives equal values from the point of view of irregularity to thick places and thin places. While this is quite sound from the point of view of the appearance of the yarn, it is not a guide to the possible performance of the yarn during weaving. What is most important in this case is the number of places below strength.

Many useful machines have been designed to obtain an accurate measurement of this property. In the Dietz tester, for instance, the yarn is put under the tension which it is estimated will be used in manufacture, and the number of breaks in a given length observed.

In all the methods described above in which a record is obtained on a greatly reduced length scale of the irregularity of the yarn, the advantage is that an immediate impression can be formed of the value of the yarn, and for many purposes in experimental spinning this is sufficient. If a numerical estimate of the degree of irregularity is required, the method which is usually adopted is as follows: Measure total area between curve and base line with planimeter, and divide by length of record. This gives mean value, and this can now be inserted on the diagram. Measure up total area above and below this mean line, and again divide by mean length; this gives mean variation from mean, and this, expressed as a percentage of the actual mean, is a measure of degree of irregularity.

In dealing with a set of numerical results such as would be obtained from a series of weight-per-unit-length measurements, the most convenient method is to calculate the coefficient of variation.

Wetting-Out Agents

TYPES, USES, AND EVALUATION

WETTING-OUT agents of various types have been brought out at a rapid rate in the last few years, and are now being employed to a considerable extent in many textile processes. It is generally accepted that these compounds lower the surface tension of the solution to which they are added, thereby permitting the liquid to come in contact more quickly with the material being treated and to flow more freely into the pores and interstices of the fibers. A number of these agents, in addition to their wetting-out ability, possess detergent action, emulsifying power, or other desirable properties. The present survey will be limited, however, to the wetting-out or penetrating action. Likewise, no attempt will be made to list all of the products now on the market; rather, some of the characteristics and uses of a few representative penetrants will be given, together with a brief discussion of methods for evaluating these compounds.

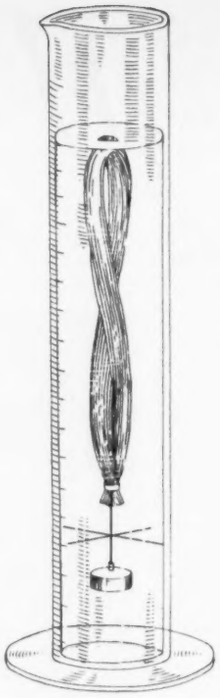
One authority has classified the wetting-out agents as follows: (1) Soaps, with or without fat solvents; (2) Sulphoricinates or sulpholeates, with or without fat solvents, and either slightly, moderately, highly, or abnormally sulphonated; (3) Alkylated naphthalene sulphonic acids, with or without fat solvents; and (4) Miscellaneous compounds including pyridine bases, esters of higher alcohols, hydrocarbons, and salts of cholic acid. To these compounds could be added mineral-oil sulphonates, halogen-substituted sulpho acids, and many other synthetic organic chemicals.

Soaps are the oldest and perhaps the best known of the wetting-out agents; a limitation to their use is the fact that they cannot be employed in acid solutions or strongly alkaline baths. Usefulness of the sulphoricinates or sulphonated oils, of which turkey red oil is typical, has been increased by the introduction of highly sulphonated compounds which are comparatively resistant to coagulation by acid and concentrated salt solutions. Incorporation of fat solvents—such as carbon tetrachloride, tetralin, and pine oil—has also broadened their scope. Nekal BX is an example of the alkylated naphthalene sulphonic acids, which in recent years have found favor in textile processing.

Recent Developments

One of the newest of the miscellaneous compounds to be developed is sodium abietenesulphonate, which can be used in acid, slightly alkaline, and neutral solutions. Several of these miscellaneous compounds are staple in concentrated alkalis and may, therefore, be used in mercerizing to accelerate the action of the solution and to promote uniform mercerization; examples are the higher aliphatic alcohols, pyridine and its hydrogenated derivatives, cresylic acid compounds, and combinations of polyhydric alcohols and phenol. Butyl cellosolve is representative of the wetting agents which lower the surface tension of acid solutions and which, for that reason, can be used in carbonizing, wool dyeing, and similar applications.

Two closely related factors have retarded the use of the newer wetting-out agents; they are: (1) over-extravagant claims made by some of the manufacturers of these compounds; and (2) lack of satisfactory methods of evaluation. True, a number of tests have been devised for the evaluation of these products, most of them being based on a comparison of the time to wet out completely certain materials and under a definite set of conditions. Illustrative of this is the Draves-Clarkson method which consists of measuring the time required for a 5-gram, unboiled, 36-in. skein of gray, two-ply cotton yarn to sink in a solution of the wetting agent, when the skein which carries a 1½-gram sinker is held below the surface of the solution by a heavier weight called the anchor.



Draves-Clarkson evaluation method

Accurate Evaluation

It has been shown, however, that the value of a wetting-out agent does not depend solely upon the speed of wetting, but on the total of all its properties which may be useful in the operation in which it is to be used. Thus, Gubelmann, Weiland, and Henke report that simple wetting tests showed that sodium isopropyl napthalene sulphonate has a greater speed of wetting than sodium abietenesulphonate. However, when 10% dyeings of Anthrene Violet BN paste were made on skeins wet in the same way with the two materials, the one wet with sodium abietenesulphonate gave the stronger and more level dyeing.

Landolt has realized the need for tests simulating actual plant conditions and has proposed a method for determining the value of a wetting-out agent for mercerizing purposes, which consists of immersing measured lengths of cotton yarn in burets filled with mercerizing liquors containing various wetting-out agents, and then noting the extent and rate of contraction of the yarn; the greater and more rapid the contraction, the more effective the wetting-out agent. When similar methods have been developed which permit the accurate evaluation of wetting-out agents for the many processes in which they may be employed to advantage, and when manufacturers of these compounds—instead of offering them as panaceas—recommend them only for the specific purposes for which they are most suitable, use of wetting-out agents will be greatly increased.

Level-Dyeing Colors

FOR VISCOSE RAYON

DUE to the difficulties encountered in the production of level shades on viscose, particularly if the rayon itself varies at all in its physical or chemical properties, considerable research has been conducted on this subject. Various tests have been devised for determining what colors will give the most uniform dyeings, and more recently several manufacturers have developed special dyestuffs for viscose rayon.

Unfortunately not all of the level-dyeing colors are characterized by the best fastness properties, especially to light; also the range of level-dyeing colors is not yet wholly complete; for these reasons, when fastness to a particular destructive agency is the prime requisite, it is sometimes necessary to employ dyestuffs from the regular cotton range at the risk of uneven shades.

On the other hand the level-dyeing colors often can be used to advantage. It is believed, therefore, that the accompanying table of even-dyeing direct dyestuffs will be of considerable value to the rayon dyer. This list has been compiled from various sources; the 1932 "Year Book" of the American Association of Textile Chemists and Colorists has been used to identify domestic dyes with their foreign prototypes.

Efforts have been made to have the list as complete as possible so far as regards products of American manufacturers. We shall be glad to receive from any of our readers the names of other dyestuffs which should be added to those given. Dyestuffs produced by domestic manufacturers are marked with an asterisk. Prototypes and "Colour Index" numbers are given when known.

List of Direct Dyes Producing Level Shades on Viscose

Yellows

Chlorantine Fast Yellow 4 GL
*Pontamine Fast Yellow 4GL (DuP)
Chlorantine Fast Yellow RL
Chlorazol Yellow 5 GK—340
*Light Fast Yellow 5GL (NCW)
*Pontamine Light Yellow 5GX (DuP)
*Solamidine Yellow 5GL (JC)
*Solantine Yellow 4GL (NAC)
Chrysophenine—365
*Amanil Chrysophenine G (AAP)
*Calcomine Brilliant Yellow C (CCC)
*Chrysophenine ESN (HM)
*Chrysophenine XX (NCW)
*Erie Yellow Y (NAC)
*Pontamine Yellow CH (DuP)
Primuline—812
*Calcomine Scarlet PRD (CCC)
*Primuline (CCW)
*Primuline Ex. (NCW)
*Primuline NAC (NAC)
*Primuline 6X (PCC)

Blacks

Chlorazol Fast Black SD (BDC)
Chlorazol Fast Black BK (BDC)
*Amanil Fast Black L (AAP)
*Benzo Fast Black LA (G)
*Direct Fast Black LR (NCW)
*Direct Fast Black LT (SA)
*Pontamine Fast Black LN (DuP)
*Solantine Black L (NAC)
Direct Black EW Ex.—581
*Amanil Black GL Ex. (AAP)
*Amidine Black Ex. (JC)
*Apomine Black E Ex. (PDC)
*Calcomine Black Ex. (CCC)
*Direct Black E (NCC) (CCW)
*Direct Black EG (NCW)
*Direct Black EU (U)
*Direct Black SGN (HM)
*Direct Deep Black EA Ex. (G)
*Erie Black B Ex. (NAC)
*Pontamine Black E (DuP)
*Trianol Direct Fast Black B Ex. (CO)
Direct Deep Black RW—582
*Amanil Black RR (AAP)
*Amidine Black RBN (JC)
*Apomine Black (PDC)
*Direct Black CW (NCC)
*Direct Black RB Ex. (NCW)
*Direct Black W (CCW)
*Direct Deep Black EWA Ex. (G)
*Erie Black RB Ex. (NAC)
*Pontamine Black RX (DuP)
Icyl Blue Black 6B (BDC)
*Rayon Black B (DuP)
Visco Black N (S)
Viscose Black GN (C)

Browns

Icyl Brown G (BDC)
*Rayon Brown G (DuP)
*Rayon Brown M (DuP)

Greens

Brilliant Benzo Green B (IG)
*Rayon Green 4B (DuP)
Rigan Green G (C)

Blues

Benzo Viscose Blue G (IG)
Icyl Blue 2RS (BDC)
Icyl Blue GS (BDC)
Icyl Navy B (BDC)
*Rayon Navy Blue N (DuP)
Rigan Blue G (C)
Rigan Blue R (C)
Rigan Blue 2R (C)
Rigan Blue 5R (C)
Rigan Navy Blue G (C)
Rigan Navy Blue R (C)
Viscose Navy Blue P (C)

Reds

Chlorazol Fast Red KS—278
*Amanil Fast Red 8BL (AAP)
*Amidine Fast Red 8BL (JC)
*Direct Fast Red 8BL (NCC)
*Direct Fast Scarlet 9B (HM)
*Fastusol Red 4BA (G)
*Light Fast Red 8BL (NCW)
*Pontamine Fast Red 8BL (DuP)
*Solantine Red 8BL (NAC)
Diamine Fast Red F—419
*Amanil Fast Red FC (AAP)
*Amidine Fast Red F Ex. (JC)
*Apomine Fast Red F (PDC)
*Calcomine Red F (CCC)
*Diamine Fast Red FC (G)
*Direct Fast Red F (CCW) (NCC) (NCW) (U)
*Erie Fast Red FD (NAC)
*Paranol Direct Red FC (CDG)
*Pontamine Fast Red F (DuP)
*Trianol Direct Fast Red F (CO)
Diamine Scarlet B—382
*Amanil Fast Scarlet B (AAP)
*Amidine Fast Scarlet BN (JC)
*Chloramine Red B (CCW)
*Calcomine Scarlet B (CCC)
*Diamine Scarlet BA (G)
*Direct Fast Scarlet B (NCC)
*Direct Fast Scarlet 4B (HM)
*Erie Scarlet B (NAC)
*Pontamine Scarlet B (DuP)
Icyl Red GS (BDC)

Bordeaux

*Rayon Bordeaux B (DuP)
*Rayon Bordeaux 3B (DuP)

Oranges

Benzo Orange R—415
*Benzo Orange R (CCW) (G)
*Direct Orange AR (U)
*Direct Orange R (NCW)
*Pontamine Orange R (DuP)
*Trianol Direct Orange R (CO)
Chlorazol Orange POS—653
*Amanil Fast Orange GLZ (AAP)
*Pyrazolon Fast Orange G (PhC)
Icyl Orange GS (BDC)
Icyl Orange RS (BDC)

Violets

Chlorazol Fast Helio 2RK—319
*Light Fast Heliotrope 2BL (NCW)
*Pontamine Fast Blue RR (DuP)
Icyl Violet B (BDC)
*Rayon Violet 4R (DuP)
*Rayon Violet 3B (DuP)

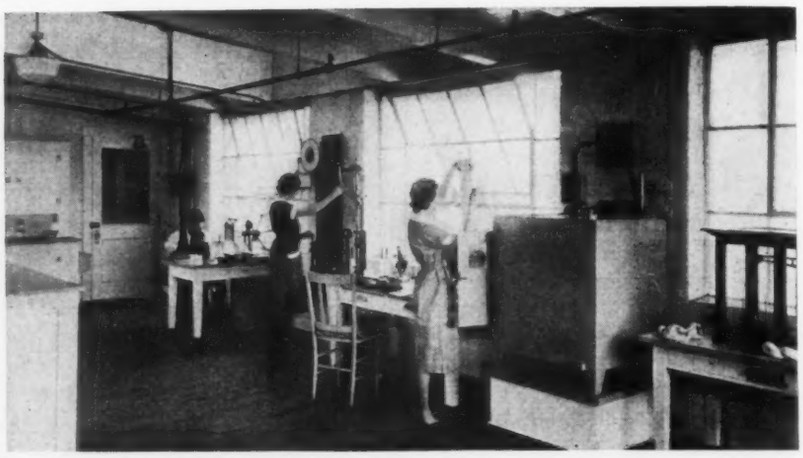
Abbreviations of manufacturers' names are as follows: AAP, American Aniline Products, Inc.; BDC, British Dyestuff Corp.; C, Ciba Co., Inc.; CCC Calco Chemical Co. Inc.; CCW, Cincinnati Chemical Works, Inc.; CDC, Chemical & Dye Corp.; CO, Commonwealth Color & Chemical Co.; DuP, E. I. du Pont de Nemours & Co.; G, General Dyestuff Corp.; HM, Heller & Merz Co.; IG, I. G. Farbenindustrie Aktiengesellschaft; JC, John Campbell & Co.; NAC, National Aniline & Chemical Co., Inc.; NCC, Noil Chemical & Color Works, Inc.; NCW, Newport Chemical Works, Inc.; PDC, Poughkeepsie Dyestuff Corp.; PhC, Pharma-Chemical Corp.; S, Sandoz Chemical Works; SA, Somerset Althouse Chemical Co.; U, United Chemical Products Corp.

Preventing Mistakes

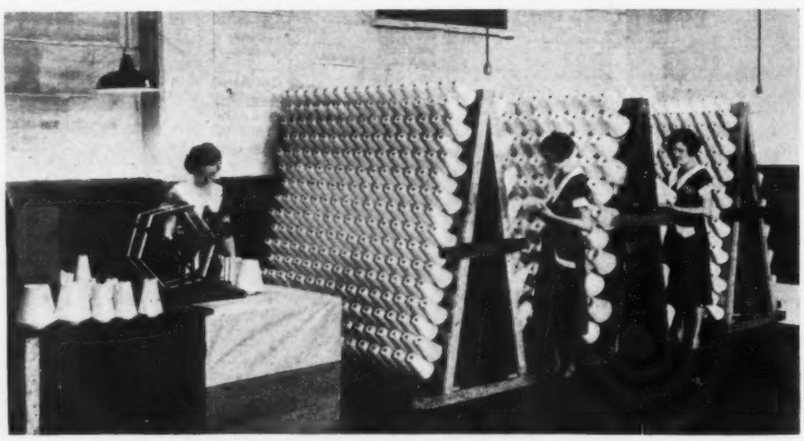
BEFORE

THEY HAPPEN

◆ *Believing in the desirability of laboratory control for manufacturing operations,* TEXTILE WORLD *investigates from time to time the steps which various mills are taking toward establishing adequate laboratories and efficient control procedure. Results of one of these investigations is published herewith.*



Interior of new general control laboratory of Dixie Mercerizing Co., showing some of the testing operations



Testing and inspecting cones in the Dixie Mercerizing Co.'s finishing department (Note uniforms of the operatives)

A LABORATORY, housed in a new building of its own, was opened by the Dixie Mercerizing Co., Chattanooga, Tenn., in October, 1931, and is now the "nerve center" of Dixie's system of controlled manufacture. Its purpose, generally speaking, is two-fold in nature: (1) To check against the results of the testing laboratory in the spinning mill and the two testing stations in the mercerizing and finishing plants; and (2) to test and study the characteristics of yarns by knitting them on the commercial types of knitting machines.

Here the most modern scientific equipment constantly checks against the possibility of faulty yarn. Raw cotton is analyzed for the convolutions of the fibers. The laboratory determines the percentage of immature fibers in cotton shipments from various sources. A particular effort is made to keep the percentage of immature fibers as low as possible. The new laboratory analyzes the results obtained in the spinning, mercerizing and finishing laboratories.

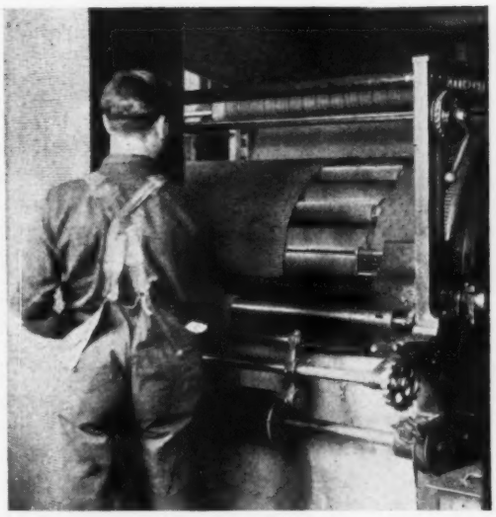
The general control laboratory, in addition to being provided with the necessary temperature and humidity controls, is equipped with the latest type testing devices, including the following: Emerson conditioning oven, yarn reels, fine balance grain scales, an Alfred Suter single-strand break-testing machine, a motor-driven Scott breaking-strength testing machine with automatic graph recording device for showing break and elasticity of the yarn, seriplane boards, and two Bausch & Lomb microscopes, one single-focal and one bi-focal. Testing operations alone require the entire time of one person, while the plant chemist utilizes the microscopes in making various tests in the chemical laboratory.

The laboratory's value to the Dixie organization was evident immediately, so a further step was taken—to make the general control laboratory of equal value to Dixie's customers. The same principle, the prevention of mistakes before they occur, was applied to Dixie yarns, except that the application was from the knitter's standpoint. The company installed a modern knitting machine and a new ribber, and employed an experienced knitter to work all counts possible of Dixie yarn on these machines, and to tabulate his results. The entire time of this man is devoted to tests and experimental work on the knitting machinery. Dixie also installed equipment for testing knitted fabrics for elasticity and for evenness of dyeing, and plans to add new equipment and methods in the control laboratory as the need arises.

George R. West, Jr., general manager, under whose direction Dixie's entire system of "controlled manufacture" has been developed, says:

"With our new laboratory we feel that we are not only increasing our own efficiency through analysis and checking, but that we are increasing the usefulness of our yarn to the knitter who buys it. We can tell him how strong it is, how much elasticity it has, how it can be used on his machines. We can tell him exactly what results he will obtain before he puts a single cone on his machines. With this information, we can check back, improve our own methods so that the yarn is more practical for the knitter."

Listing IS COMMON FAULT IN PIECE-DYED WOOLENS AND WORSTEDS



EXAMINATION of a listed fabric seldom suffices to reveal the exact cause of the defect, as it may be due to incorrect treatment of the goods during one or more of a number of wet-finishing processes. However, if these various cases are known, the dyer and finisher can take the precautions which are necessary to avoid listed goods. For this reason we are recapitulating below some of the chief causes for listing and the measures to be taken to prevent its occurrence. In assembling this information we have drawn extensively from an address on faults in piece-dyed woolen and worsted materials, delivered recently at the annual conference of the Textile Institute (England) by Dr. L. L. Lloyd, of Bradford Technical College, but have supplemented Dr. Lloyd's remarks with data from our technical files.

One of the common causes of listed fabrics is faulty crabbing. Use of alkaline water in this process is dangerous, because the alkali acts as a hydrolytic agent, modifying the dyeing properties of the wool. Since the boiling water has readier access to the fabric from the selvages towards the middle of the fabric, these portions receive higher degree of treatment from the alkaline solution than does the rest of the cloth. The tension under which the fabric is crabbed also plays an important part in the degree of listing produced, too little tension being particularly undesirable. Acidification of the crabbing liquor does not prevent listedness; but use of hard water, preferably of permanent hardness, is advantageous. If, after crabbing, the goods are allowed to remain on rolls for several hours or overnight, pressure on in the middle of the piece, may force the liquor to the edges, and thus result in listing.

In wet-blowing, or wet-decatizing, if too little tension is applied to the fabric, listed pieces may occur. Likewise, if the process is hastened, the heat treatment may not be uniform from selvage to selvage, and listing may follow. Use of dry steam in this operation minimizes the danger of shaded goods.

Entering the goods into a dye-bath which is too hot or too highly acidulated, raising the temperature of the solution too quickly, failure to boil sufficiently in either dyeing or chroming, and over-crowding of the goods in the tub, may give rise to listing. Level-dyeing colors, or those which can be boiled on evenly, reduce the danger Care should be taken that the dye liquor is of a uniform temperature across the tub; otherwise listed goods may result. Tight or hard selvages may cause the fabric to roll and twist, and therefore dye heavy in the center and light on the sides. Bagging, or tacking, the goods before dyeing is a recautionary method worth considering.

Incorrect scouring often results in cloudiness or blotchiness and occasionally in listing. This latter is particularly true when scoured goods which have not been rinsed free from alkali are allowed to stand without drying for any considerable time. In this case the moisture evaporates at the selvages.

This allows the alkali to concentrate at these points, hydrolyzing the wool and modifying its dyeing qualities.

The carbonizing process is a constant source of danger. Squeeze rollers should be true to insure even saturation of the goods with the carbonizing solution. The material must be extracted uniformly, or the liquor will seep from place to place on the partly dried fabric, and thus lead to uneven carbonizing, which in turn will give shaded prices.

When vacuum extractors are used, care must be taken that the selvages are extracted as thoroughly as the rest of the fabric.

In drying carbonized goods, if the material on one side of the machine is dried first, capillary action will carry more of the liquor to the dry portion of the material; this liquor will dry over the other, and so on until all the water has been evaporated; after neutralizing the goods, the dyer may use the best of level-dyeing colors, but the fabric will be shaded from one selvage to another. If the material is not completely neutralized after carbonizing, the dyestuffs may jump on quickly, and thus promote listing.

In fulling, rolled selvages may give rise to uneven felting, another cause of listed pieces. Therefore it is often advisable to tack the goods before starting the fulling process.

Proper cooling and conditioning of woolens and worsted after drying is essential; otherwise the edges of the goods have a tendency to absorb moisture more quickly than does the center of the fabric, a condition which encourages creeping of the dyestuff and, consequently, listed fabrics. Finally should be mentioned that uneven napping or shearing can give a shaded effect. In fact, these processes, if carried out properly, often improve the appearance of goods which have become listed in previous operations.

HOW TO OBTAIN SATISFACTORY SERVICE FROM *Belted Motor Drives*

By Robert W. Drake
Electrical and Mechanical Engineer

LEATHER-BELT power transmission, when properly used, combines long life, low maintenance cost, and dependability with a sustained high efficiency at average operating loads. There are, however, a number of special conditions to which the flat leather-belt drive must be adapted if it is to give the most satisfactory service. It is the aim of this article to help the operator to recognize such special conditions, tell him what to do and how to do it, so that the belt drive will be free from trouble and will require the minimum amount of attention.

Proportioning Belt to Drive

Too often a belt drive is proportioned from consideration of average running conditions. We lose sight of the fact that the belt must carry the peak loads as well as the running load. Fully one-half of belted motor applications require a heavier belt for starting than for satisfactory running. Practically all three-phase a-c. motors which start on the line, and many d-c. motors, develop from one-third to one-half more belt pull at starting than when operating at full rated load. Wound-rotor motors sometimes, and high-slip linestart motors (high-resistance rotor motors) always, develop twice normal full-load belt pull at starting.

When a-c. linestart motors reach about three-quarters full speed, or when compensator-start motors are thrown over onto the line before they rise much above three-quarters full speed, the belt pull rises to double full load for a time—a short time with an easy starting load which comes up to speed quickly, a longer time for a slow starting load.

The motor determines the belt pull during starting without reference to the requirements of the load. Any pull available in excess of that necessary to overcome starting resistance is used in hustling the load up to speed. A belt which will carry an excessive pull momentarily on an easy starting load, will frequently come off, if the same pull persists for several seconds, on a load which takes longer to start. It is evident, then, that the belt drive from a motor must in general be capable of carrying about twice the normal full-load belt pull, at least for a short time during starting. In the case of many 60-cycle motors running at 1,800 r.p.m. and all high-slip motors, instead of twice full load, the belt must transmit 2½ times full-load pull.

If the capacity of a drive planned with motor manufacturer's standard pulleys must be increased because of extreme load peaks or for any other reason, there are a number of expedients which will help in such cases. They are as follows: (1) Putting on paper pulleys, if old ones are wood or metal; (2) Securing higher belt speed by means of larger diameter pulleys; (3) Using the pivoted motor base or gravity idler drives; (4) Putting on a wider belt (provided the bearings will stand the extra belt pull necessary if a wider belt is to carry additional load).

Where the smaller pulley of the drive is not paper, an increase of 25% in drive capacity may be obtained by installing a paper pulley. Since all motor manufacturers furnish paper pulleys, they are generally used on the motor, but we sometimes lose sight of the fact that in speed-up drives the driven pulley is the smaller and should also be paper. Even on drives where the driven pulley is the larger, a worth-while improvement in capacity and a decrease in slip may be obtained by substituting a split paper driven pulley where the driven pulley is not more than three times as large as the driver.

Higher Belt Speed

The faster a belt is run up to 5,000 to 6,000 ft. per min., the more horsepower it will carry. Above 4,500 ft. per min. the gain in horsepower is not large. Except for medium and large 1,750-r.p.m. motors and large 1,140-r.p.m. motors, manufacturers' standard pulleys give belt speeds decidedly below 4,500 ft. per min. In many cases it is possible to materially increase the horsepower capacity of an existing drive by increasing the belt speed without exceeding 4,500 ft. per min.

Higher belt speeds may often be used where the drive carries the load satisfactorily, but the motor bearings heat dangerously. By substantially increasing the belt speed a narrower belt may be used, or the old belt run slack and the bearings greatly relieved. Wherever the motor pulleys in service are smaller than the sizes tabulated below, higher belt speed should be considered first of all when relief is desired for an overloaded drive.

1,750-r.p.m. motor, 9¾-in. pulley
1,140-r.p.m. motor, 15-in. pulley
850-r.p.m. motor, 20-in. pulley
690-r.p.m. motor, 25-in. pulley
570-r.p.m. motor, 30-in. pulley

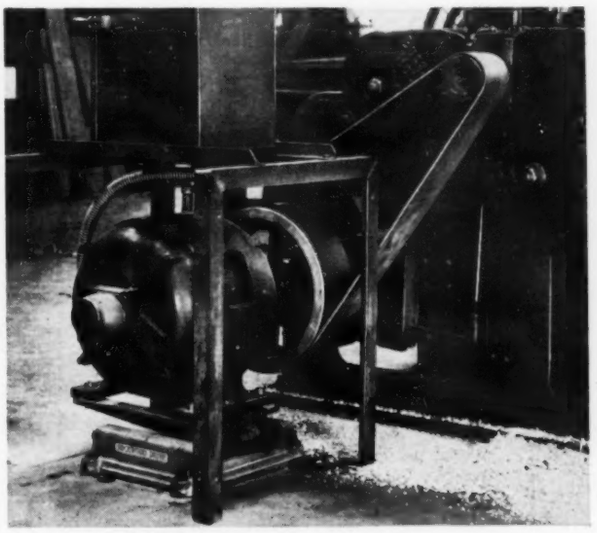
In some cases you cannot increase the belt speed; for instance, on a large 1,800-r.p.m. motor where the belt already runs at 4,500 ft. per min. or more. We may find it is impossible to increase the driven-pulley size because of interference with ceiling, floor, or frame of the driven machine.

"Let's put on a wider belt." This is ordinarily the solution which first comes into one's mind when a belt drive operated at reasonable tension will not start the

load or fails to carry the extreme load fluctuations. With motor belts this ordinarily is not the best solution for the problem. Rather, if by means of any reasonable expedient, you can use a motor pulley that is not smaller than the motor manufacturers' standard diameter, this is the thing to do. The great majority of all troubles from motor drives result from using motor pulleys smaller than the standard.

With a smaller pulley, belt life is shortened. By using special, extra-flexible belting you can avoid this, at least in part, if the pulley is not too small. If the pulley diameter is to be decreased, the belt must be wider, and in about the same proportion. If this cannot be done, a pivoted motor base or gravity idler is generally advisable. With a wider belt, the load on the motor bearing will be greater than normal, bearing life shorter, and bearing operating temperature higher than normal.

There is ordinarily some allowance in the design of motor bearings for overtightening belts, or for some slight increase in belt width. Such allowance is small in large high-speed motors, and is larger in moderate or slow-speed motors, and small motors. All motor manufacturers will furnish tables or data sheets showing the widest belt and the corresponding smallest pulley which any given frame, operated at any given speed, will stand without dangerously overloading bearings. It is worth while for the plant engineer to provide himself with these data covering the motors which he is using.



The pivoted motor base is particularly useful when flat belts are to be installed on very short centers as excess strains to maintain belt tightness are avoided

Roller Bearings

In the case of motors with ball bearings we have one expedient available which frequently saves the day in such special applications, at least in the medium and smaller sizes of motors. There are on the market several makes of roller bearings, interchangeable in dimensions with standard ball bearings, which, within their speed limitations will carry about twice as much load as standard ball bearings of the same dimensions. These bearings will carry no thrust loads. Where the speeds are not too high relative to the shaft diameter (that is, in medium and small sizes of motors) any reasonable increase in belt width is permissible with these roller bearings in the pulley end bearing, and deep-groove ball bearings in the front end to take the thrust. This permits belts 50% wider than standard in almost all cases of 15-hp. motors, or below; and belts almost double standard width in small motors, particularly with the use of pivoted motor base or gravity idler.

Pivoted Motor Base

The pivoted motor base and gravity idler are two types of drive which are particularly useful when motor drives must be installed on very short centers. In fact, if with short centers is combined a considerable difference in pulley size, some such special drive is almost a necessity.

The pivoted motor base drive greatly reduces the pulls on both the tight and the slack side of the belt at all loads except extreme overloads. Even at extreme overloads it affords considerable relief, for it makes it unnecessary to strain the drive tighter than is needed for operating requirements in order to allow for subsequent stretch.

Ordinary belt drives on motors operate at an average motor load not much exceeding the motor rating, but the belt tensions must be sufficient to enable the belt to carry about double the corresponding pulls momentarily during starting, and for short periods during operation. In extreme cases with certain types of high-speed motors, the belt must carry three times normal pull momentarily, a small part of this being power delivered by the motor rotor as a flywheel in addition to the power delivered from the electrical operation of the motor. A pivoted motor base, properly adjusted, may carry heavier intermittent loads than an ordinary drive without overheating motor bearings, for the load on the motor bearings will be decreased during periods of light load and normal load. On such a drive, it is safe to use a belt slightly wider than could be used on the same motor with an ordinary drive.

Where the driven pulley is four times as large as the motor pulley and the center distance is short—or where the pulley ratio is six to one, with longer center distance—the gravity idler drive will carry more load than the pivoted motor base drive.

Wherever the pulleys are more nearly of the same size, the idler drive shows less advantage in extreme capacity. Where the pulley ratio is within reason, and it is not absolutely necessary to obtain the extreme limit of capacity from a given width of belt, the pivoted-motor-base drive has decided advantages. The belt creep and slip within the capacity of the drive, is, for both the pivoted motor base drive and the gravity idler drive, so low as to be practically negligible, being normally less than 1%.

Changes Simple to Make

It has been shown that the operation of machinery by motors brings up a number of special conditions which may require some changes in the belt drive to adapt the belt to the new condition. These changes, however, are relatively simple to make; and if the suggestions given above are followed, such a thing as trouble with a flat-leather motor-drive belt should very seldom occur.

THE PERSONAL PAGE

HENRY P. KENDALL, president of the Kendall Co., was one of the group of New Englanders who conferred, on Aug. 1, with President Hoover and other Government officials, on the subject of a flexible work-week.

GEORGE S. HARRIS, former president, American Cotton Manufacturers Association, has accepted appointment as textile expert of the central cotton distribution office of the American Red Cross, Washington, D. C.

JOSEPH P. GAUT, former president of the East Tennessee National Bank of Knoxville, Tenn., has been elected president of the Holston Mfg. Co., Knoxville, succeeding E. B. CARTER, who resigned last April. Mr. Gaut has been acting president since Mr. Carter's resignation.

WILLIAM H. ROBERTSON, son of the late C. N. Robertson, has been elected president of Robertson Bleachery & Dye Works, Inc., New Milford, Conn., to succeed his father. LEON U. GRIDLEY, secretary, was chosen to fill the treasurer's post as well.

CASON J. CALLAWAY, of the Callaway Mills, LaGrange, Ga., has been elected to membership on the New York Cotton Exchange.

MALCOLM D. WHITMAN, president of the Nashawena Mills, New Bedford, Mass., addressed the annual meeting of the Institute of Public Affairs, which was held at Charlottesville, Va., July 3-16, on the subject of anti-trust legislation.

L. G. DRUMMOND, formerly president of the Blue Ridge Woolen Co., Chambersburg, Pa., has become president and will take over the management of the Rocky Gorge Woolen Co., So. Berwick, Me.

HOWARD WOOD, formerly president and superintendent of the Rocky Gorge Woolen Co., So. Berwick, Me., has resigned to go with Fred'k. T. Lawrence & Co., New York, as styler and contact man.

JEROME LEVINE, of H. Hentz & Co., New York, was unanimously elected president of the National Raw Silk Exchange for his fourth consecutive term in that office on July 19.

FRANK E. RICHMOND, president, the Crompton (R. I.) Co., has been elected treasurer of B. B. & R. Knight, Inc., Providence, R. I., succeeding COL. G. EDWARD BUXTON in that office. Col. Buxton retains the presidency of the Knight organization and the management of the Insull cotton mill properties in Maine.

ROBERT TURNBULL, president, Boston Wool Trade Association, was chairman of committee in charge of a dinner at Algonquin Club to COL. C. F. H. JOHNSON, president, Botany Worsted Mills.

EUGENE C. MYRICK, New York, has been appointed agent for the Toledo (Ohio) Dye Works in the metropolitan district. J. D. LIPPMANN, vice-president, is now also general manager. The company will also open a Chicago office.

V. D. MILLIKEN, for the last three years in charge of the Philadelphia office for Nyanza Mills, has been appointed sales representative for the Industrial Rayon Corp. in the Philadelphia district.

F. C. Niederhauser

H. N. Cappel

FREDERICK C. NIEDERHAUSER, who joined the Tubize Chatillon Corp., Rome, Ga., and Hopewell, Va., in Oct. 1930, and became assistant to the vice-president and general manager in Oct. 1931, has been promoted to vice-president in charge of operations.

HOWARD N. CAPPEL, who has served as sales manager of the Tubize Chatillon Corp., with headquarters in New York, since 1930, has been elected vice-president in charge of sales. E. W. Martin has been appointed sales manager.

FRED D. CRAWFORD, formerly in charge of the hosiery and underwear departments of Marshall Field & Co., and more recently with the Quaker Hosiery Co., became vice-president of Hanes Associated Mills, July 1, New York.

FRITZ QUITTNER, former treasurer of the Fleischer Mills, Philadelphia, has been placed in charge of the Centerdale (R. I.) plant of the Centerdale Worsted Co. JAMES J. LISTER has been made general superintendent of all plants of the reorganized Centerdale Worsted Co. JOHN LISTER will have charge of the drawing and spinning departments at Centerdale. HARRY BALDWIN is now treasurer of the company and C. A. POST, secretary.

WILLIAM B. PURSE, formerly connected with the Tubize Chatillon Corp., with offices in Chattanooga, Tenn., has been appointed general sales representative for the Standard-Coosa-Thatcher Co., cotton yarn spinners and mercerizers, covering the territory consisting of Ohio, Indiana, Illinois, Michigan, Missouri, West Virginia.

JOSEPH TARPLEY, formerly with Percy A. Legge for 12 years, has become sole selling agent of the Bernon Worsted Mills, Bradford-spun yarns, Woonsocket, R. I., working direct from the mill office.

I. JAY JACOBY, sales and promotional manager of Cohn-Hall-Marx Co.'s silk department, New York, since Feb. 1, 1928, has tendered his resignation to take effect Aug. 1, 1932.

MISS KATHRYN DAY, fashion advisor in charge of new uses for the Durene Association of America, sailed for Europe on July 29, where she will cover the fine cotton situation in France, Switzerland and England to obtain advance information for the benefit of Durene users.

FREDERICK T. VILMAR has resigned as sales manager of the furniture division of the Collins & Aikman Corp. to accept a similar position with L. C. Chase & Co., Inc., New York.

GLENN GARDINER, assistant to the president, Forstmann Woolen Co., Passaic, N. J., will act as chairman at the session of the Silver Bay (N. Y.) Conference on Industrial Relations on "Present Aspects of Unemployment Problem," Aug. 25.

H. M. PASKOW and D. J. KELLEHER, whose success in developing the efficiency of the Toledo (Ohio) Dye Works was recorded in the last Annual Review Number of TEXTILE WORLD, have resigned as general manager and superintendent respectively of that company. Mr. Paskow is at the Commodore-Perry Hotel, Toledo, pending development of plans.

THOMAS J. MULDOON has become associated with Scheuer & Co., cloth brokers, New York. He will specialize in rayon and silk fabrics. He recently resigned from J. T. Scott Co.

JULES FEI, formerly manager of the manufacturing and converting departments of B. Edmund David, Inc., New York, is now manager of converting department for Duplan Silk Corp.

SAMUEL M. WEEKS has become general sales manager of E. Richard Meinig Co., Reading, Pa. Mr. Weeks will also be a director of the company.

THOMAS B. BRADLEY, manager of Newnan (Ga.) Cotton Mills' New York office for a number of years, has accepted a position with the Statesville (N. C.) Cotton Mills, as manager of their New York office, now located at 51 Madison Ave.

THOMAS B. CONGDON is manager of the newly formed Armstrong Silk Corp., New London, Conn., which has taken over the local Corticelli Silk Co.'s plant of which Mr. Congdon was superintendent under former management.

WILLIAM C. LEOPOLDT, formerly with Associated Dyeing & Printing Corp., has joined sales staff of National Silk Dyeing Co., Paterson, N. J.

OSCAR DIETRICH, superintendent of Georges River Mill, Warren, Me., has resigned.

B. A. OESTERLING, formerly with Arnold Print Works, North Adams, Mass., has become superintendent Arkwright Finishing Plant, Fall River, Mass., succeeding T. E. DONLAN, resigned.

L. L. SYKES, formerly superintendent Glazier Mfg. Co., South Glastonbury, Conn., has become assistant superintendent, Germania Mills, Holyoke, Mass.

CHARLES J. ESTERLY, chief salesman of the Berkshire Knitting Mills, Reading, Pa., resigned July 25 after 16 years association during which time he also served two terms in Congress.

A. F. BURGESS, formerly in charge of the rayon department of the Lonsdale (R. I.) Co., and previously with the Newmarket (N. H.) Mfg. Co., has been appointed superintendent of the Spencer Corp., Spindale, N. C., succeeding J. O. WILLIAMS, who recently resigned to become general superintendent of Pisgah Mills, Inc., Brevard, N. C., and Green River Mills, Inc., Tuxedo, N. C.

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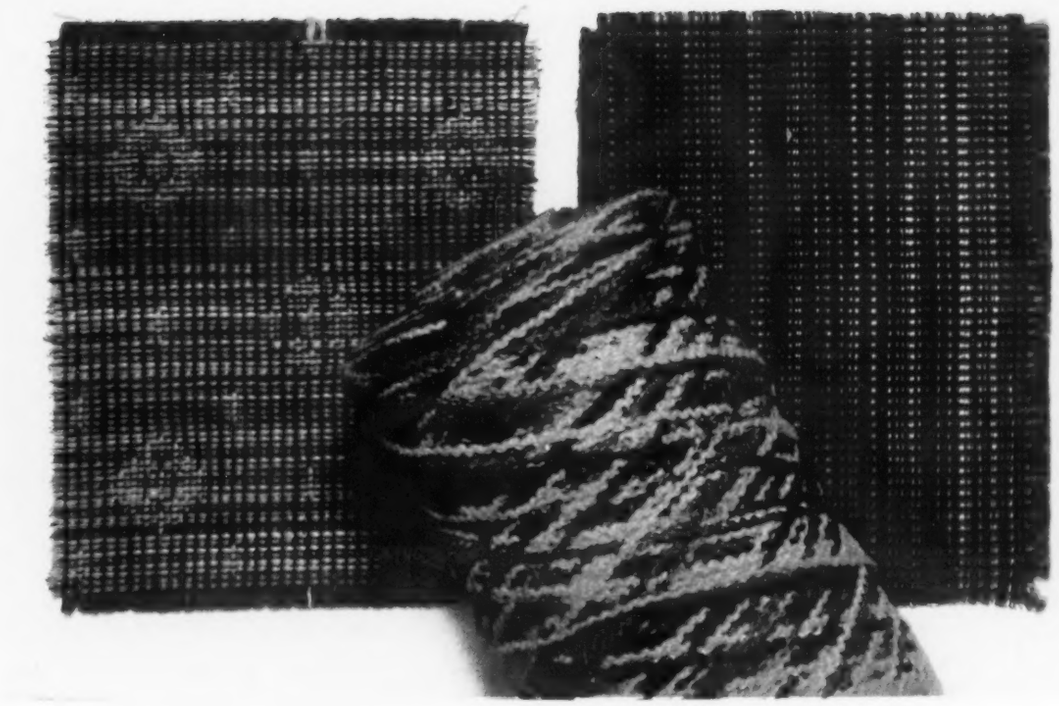


One of the many interesting methods of producing novelty effects. Tube is cotton ratiné, random-dyed. Fabrics are also of random-dyed yarns

Novelty Yarns

A STUDY OF TYPES AND VARIATIONS

A PUZZLED group gathered in a downtown New York office in the year 1876. Before them was a sample, imported from France, of a high-grade wool dress fabric of unusual appearance. Examination showed that the fabric was woven of a yarn which consisted of two plies of worsted yarn twisted together in such a way that one color formed nubs on the other at intervals. Designers and mechanics sat down to figure out how it was done, and the American novelty-yarn industry was born.

The original yarn was called "bourette" by the French and has survived in this country as nub or knot yarn. Flake yarns were introduced in 1878; and then, in 1883, came the "bouclé" or loop yarn, the most popular of all, which showed small rings of mohair on the surface of the goods when woven.

With many minds focused upon the problem of producing new varieties, and with such a limitless number of permutations and combinations to play with, it is not practical to attempt any description of all the varieties of novelty yarns or of the many methods for producing them.

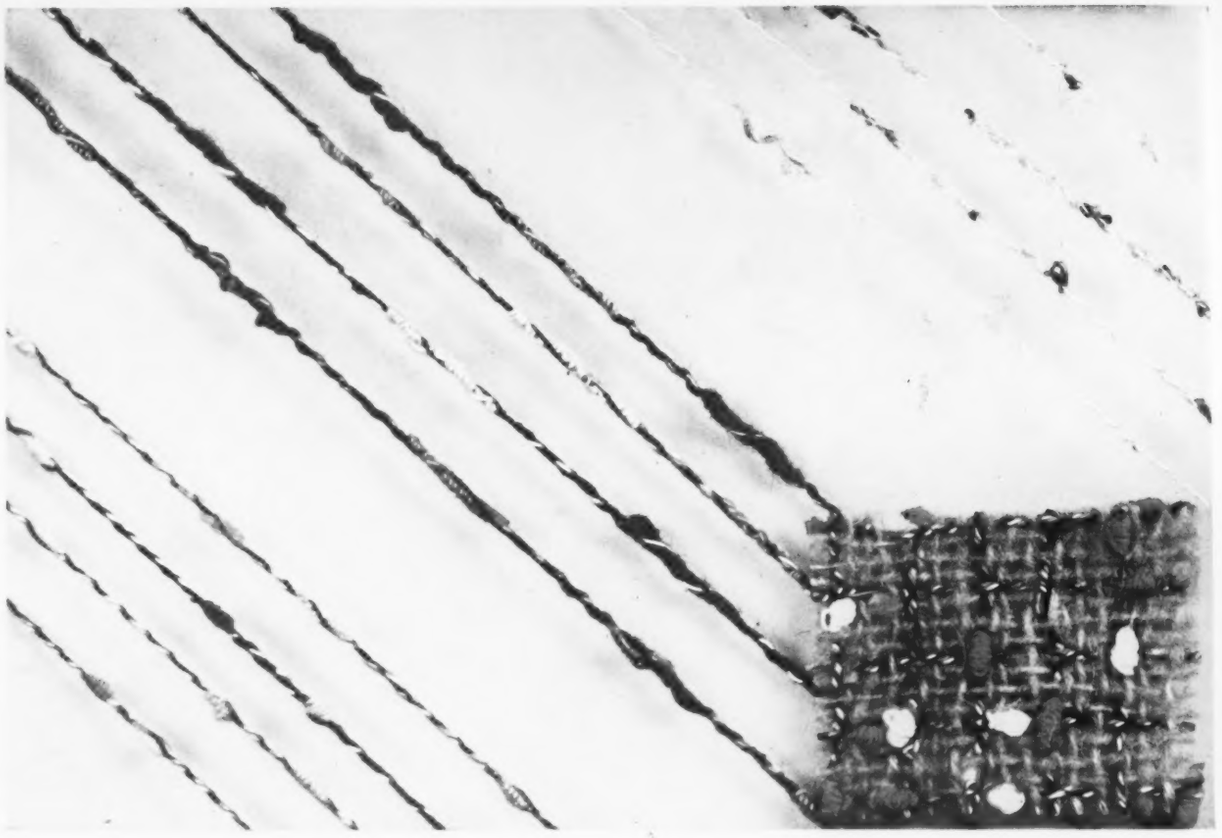
However, there are certain general classifications and the five which include all the commercial types may be described as follows:

1. *Spiral yarns.* The general appearance of this type is that of a coarse yarn twisted around a fine yarn in such a manner that it gives the effect of spirals.

2. *Ratiné yarns* may be said to be a derivation of spiral yarns, although method of manufacture varies and the effect is of one or more plies loosely held by a base yarn and a binder.

3. *Nub yarns* are also referred to as knotted yarns. One ply is twisted around the other many times within the space of, say, $\frac{1}{4}$ in., the nubs thus formed being spaced at intervals.

4. *Flake yarns.* This group includes slub yarns, and the outstanding characteristic is that one of the plies is radically coarsened at intervals to form a bunch. The yarn to form the flakes may be merely tufts of roving



Reading upward from lower left corner: ▶ *1. Group of cotton nub yarns made with two nubbing yarns and base yarns; binder added later;* ▶ *2. Group of cotton nub yarns of slightly different construction;* ▶ *3. Group of silk noil ratiné with rayon base and rayon binder.* ▶ *4. Fabric woven of wool interspersed with cotton nub yarn. All twice true size.*

inserted between binder yarns at certain intervals, or it may be continuous.

5. *Loop yarns.* Bouclé is the most popular of the loop yarns. As the name implies, one of the ends is slack in the twisting operation so that it twists on itself and forms a small loop. Mohair, luster wool, or similar fiber must be used.

When it is considered that cotton, silk, wool, rayon, or mohair can be used for any or all of the ends, and that the number of ends, count, color, twist, ply, and spacing can be varied, the number of possible combinations is seen to be practically limitless.

The problem with respect to machinery for producing novelty yarns is also a complex one. Any ingenious mechanic, by playing around with an ordinary spinning frame or twister, can produce certain kinds of novelty yarns. The greatest drawback to such home-made riggings, however, is that they lack versatility.

Within the confines of this article it will be possible to describe only certain motions and attachments typical of novelty twisters and to show how such motions are used in the production of the different classifications of yarn. The following are the more important features:

1. Two lines of delivery rolls. While three lines of rolls can produce more intricate effects, two lines are sufficient for all ordinary purposes.

2. Gearing must be arranged so that each line of rolls can be driven at a different speed. Provision should also be made so that gears can be changed readily and quickly.

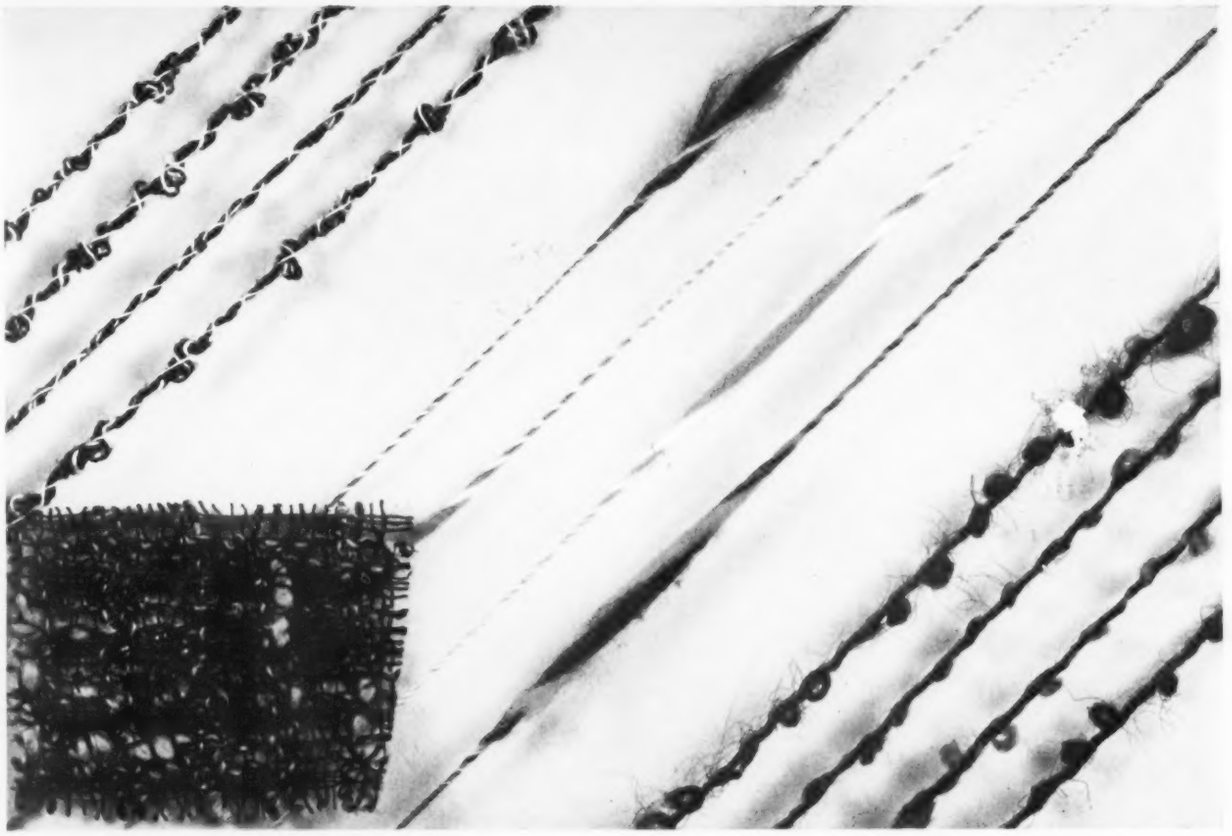
3. Arrangement by which each (or at least one) line of rolls can be stopped while the other continues to operate. This is accomplished by having a clutch at the drive end of each line of rolls. The clutch may be actuated by placing metal nubs on a revolving perforated disk, each nub throwing out one or the other clutch as it contacts the mechanism. Throwing out of the clutch may also be accomplished by a cam, or by means of a chain somewhat similar to that used to actuate dobby heads in weaving; the position of the risers and low links determining the action of the clutches. An alternate motion, other than clutches, will be described later in this article when nub yarns are discussed.

4. Suitable means for guiding the ends. This usually means that provision is made for attaching various guides above the thread guide to determine the point at which twist will be inserted between two given ends.

5. Set of grooved top rollers. Purpose of the grooves is to allow one end, or two, to pass through the line of rolls without partaking of the motion.

6. An attachment for making flake yarns, consisting of an additional line of fluted spinning rolls capable of being operated intermittently.

Features 1 and 2 mentioned above are essential for the production of practically any novelty yarn. The other features are used in accordance with the type of yarn to be produced.



Reading down from upper left corner: ▶ *1. Rayon-cotton ratiné of unusual type.* ▶ *2. Group of flake yarns made by twisting with base yarn two slub yarns produced on spinning frame. This is an interesting variation of the usual flake yarn.* ▶ *3. Group of loop yarns.* ▶ *4. Fabric is loosely woven with flake yarns. All magnified about twice true size.*

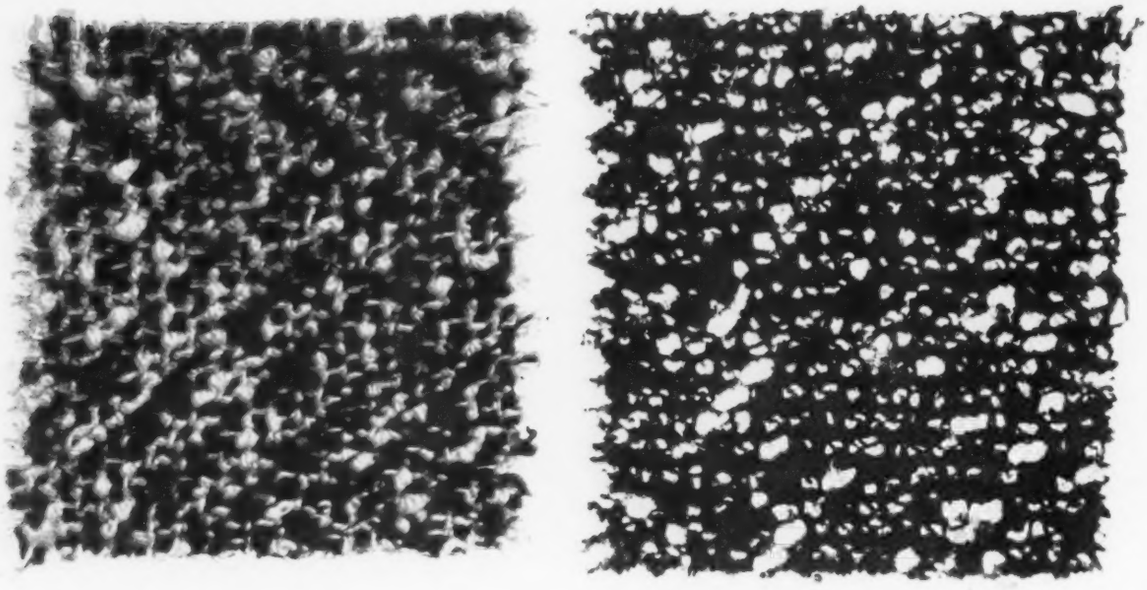
Spiral twist yarns are the easiest to make. Many a mill man, in fact, has had occasion to curse the corkscrew effects produced when something goes wrong in regular twisting. On the novelty twister a simple spiral is made by running the base yarn through the upper line of rolls (base yarn is finer than spiraling yarn), running the spiraling yarn through the lower line of rolls and setting the latter to deliver faster than the upper line. More than two ends and colors can be used if desired. A beautiful spiral effect with a continuous-filament yarn such as silk or rayon can be produced in the following manner: The base yarn is run through the upper line of rolls and the lower line set to deliver such an excess of the spiraling yarn that it completely covers the base yarn with a hard twist. After this operation is completed, the yarn is again run through the twister (using only one line of rolls) and twisted in an opposite direction so that the original twist is removed. The result is a smooth spiral. If necessary to give firmness to the yarn, a binder thread may be added in the second operation. The binder thread for this purpose is usually a fairly fine, strong yarn.

Ratiné yarns are constructed in several ways, but the following simple example will illustrate the general method: One end of 30/2 cotton is run through the top line of rolls, and one end of soft-twisted 10/1 run through the lower line, which is set to deliver an excess of about 50%. About 18 turns per inch are inserted in a right-hand direction. The second operation consists of twisting in an opposite direction with the addition of a 40/2 binder thread, about 8 turns per inch being inserted. The result is that the 10/1 is loosely held between the base yarn and the binder and, particularly where differently colored yarns are used, the peculiar ragged effect is produced. Two or more main yarns and two or more auxiliary yarns may be used.

Nub yarns are one of the most interesting classifications. Where the roll lines are fitted with clutches, the simplest type is manufactured as follows: One end of 30/2 cotton dyed blue is run through the top line of rolls and down to the thread guide. One end of 30/2 yellow is run through the bottom line of rolls and out to a guide (which may be either a wire guide or merely a bar) so that it meets the blue yarn at an angle of about 75° (usually the lower rolls deliver an excess, the amount depending upon the spiral effect desired between the nubs).

The nub is then formed when the mechanism controlling the clutch on the top line of rolls throws it out at predetermined intervals. Delivery of the top, or blue, thread is thus stopped, with the result that the yellow thread is twisted tightly about the blue thread at one point. When the clutch is once more engaged, the regular twisting operation goes on.

To produce several colored nubs it is necessary only to run two or three ends through the lower line of rolls



Women's wear wool fabrics produced with ratiné yarn, one of the leading style uses at present for novelty yarns.

and then run them through individual guides to the base thread at intervals of, say, 2 in. When the base thread stops delivering, each of the other yarns will form a nub on the base yarn.

In this construction, where just two differently colored yarns are used, alternate nubs can be formed if the mechanism is such that first the top and then the bottom line of rolls can be stopped. Spacing between the nubs is determined by the design disk or chain that operates the clutches.

As mentioned previously, there is another mechanism to produce nub and other yarns. The basic principle is that there is a rocker arm between the point where the yarn leaves the lower line of rolls and the point where it joins the yarn from the upper line. The lower rolls are set to deliver an excess; and, as the operation starts, the rocker arm descends on the yarn and takes up the excess, actual delivery to the twisting point thus being slowed down so that regular twist is inserted. As the rocker arm is released, the slack thus created twists around the base yarn to form the nub. Spacing of the nubs is determined by the shape of the cam actuating the rocker arm.

The most familiar type of flake yarn produced on the twisting frame is one in which a tuft or slub of roving is caught between two base threads at intervals. One method of producing such a yarn is to have a line of fluted spinning rolls in addition to the regular lines. The roving is run through the fluted rolls and is delivered between the base threads just prior to their joining and being twisted together. By means of a clutch the fluted rolls can be stopped. When such a stop occurs, the roving breaks and a tuft is caught between the base threads as they twist. The fluted rolls remain inactive until it is time to deliver the next tuft which in turn is caught by the twisting base yarns.

Another type of flake or slub yarn can be produced on a spinning frame hooked up so that the speed of the back roll can be varied. This is usually accomplished by means of an over-running clutch, similar to free-wheeling devices in automobiles. With the back roll running at normal speed, the yarn is drafted in the usual manner. When the back roll is radically speeded up for a few revolutions, practically no drafting occurs and a slub goes through. Such yarns require a binder thread to give tensile strength. The spinning frame can also be arranged to spin variable yarn; i.e., it can begin spinning 10s, gradually change to 30s, and then slowly return to 10s.

Loop yarns require mohair or luster wool, as the yarn must be lively to form the loops. The simple type is produced in the following manner: Two ends of a base yarn are run through the upper rolls, being kept apart by guides. They are then run down to the lower line and through the rolls in grooves. Between the grooves one or more ends of looping yarn are run. The upper line of rolls is set to give the desired twist and the lower to give the desired excess of looping yarn. As the base threads run in grooves, they do not partake of the motion of the lower line of rolls, but catch the looping yarn between them in the twisting operation. As the looping yarn is slack, it curls and forms loops due to the stiffness of the mohair yarn. Running on the binder thread in a subsequent operation secures the loops. Intermittently spaced loops can be produced by using the rocker-arm mechanism described above with the right cams for that particular purpose.

There are many devices that can be added to produce special effects, and the number of possible variations is practically unlimited. This brings up the question of keeping records. It is absolutely essential that every detail of manufacture be written down if the yarn is to be duplicated at some future date. Such details would include count, ply, color and stock of yarn; gearing; direction of first and second twist; turns per inch; speed of spindles; and all other pertinent information.

ADVERTISING PAGES REMOVED

LETTERS TO THE EDITOR

Sad but True

Editor, TEXTILE WORLD:

Referring to your article, in the July issue, under the heading, "Technical Men Are Not Luxuries," I hereby give you my compliment, for depicting the truest of true stories, a sad story indeed for the entire textile industry.

Some and many of the textile manufacturing corporations have made a grave mistake by giving the technical man, the brain of the manufacturers, the air. If there is anyone in the industry that is able to help the progress of the industry in good times, then technical men are needed most during times as we are experiencing at present. New methods and new fabrics build a new competition, fair and stronger than the detrimental competition in lowering prices. The best competition, since the cradle days of industry, is the competition in quality and originality, which is more creative than any other, and this method of competing with other manufacturers still holds good. The best is never too good in the field of honest competition.

I am a textile technician and designer (lucky to have a job) employed at 35c. an hour, and not working full time, and through other deplorable inconvenient situations, forced to suspend the subscription of your, to textile men, valuable TEXTILE WORLD. Sorry, I have to miss many an educative, informative issue, until I can afford again to subscribe for it.

To avoid any mistake, I am suspending the subscription of the TEXTILE WORLD, only because I cannot afford to renew it. I think the change of the magazine to a monthly is of great advantage for the reader, as well as for the magazine itself.

"NECESSARY LUXURY."

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And, Again—

Editor, TEXTILE WORLD:

Just a word or two to compliment you on the exceptionally humane editorial that appeared in the July issue of TEXTILE WORLD. It is certainly commendable and I am taking this opportunity to compliment both yourself and your organization for the stand that they have taken on behalf of the trained workers in the textile industry.

We can appreciate your editorial in connection with these men because we, in our position in connection with the laundry and cleaning industry, receive continually applications from men who have been in the industry for years who are valuable men and who are now seeking any kind of employment and who are willing to accept even the lowliest position that we may be able to locate for them. We also know that these men, mostly, are a credit to the industry and would, even if contacted with the industry in a lowly position, still be of tremendous value to their employers. It appears, therefore, that the textile industry is in the same shape and your stand in trying to draw this condition to the attention of textile manufacturers is, as we said before, highly commendable.

R. C. CAINE,
Sales Promotion Department,
The American Laundry Machinery Co.

It Must Be Good

BOMBAY, INDIA.

Editor, TEXTILE WORLD:

The article "Shrink and Sell or Liquidate" by Mr. Austin, in the May 21st issue, is worth more than hundreds of dollars. It is an article which should not be only read but should be studied minutely by all. It will help many mills which may be in the same plight as the one in question but which never came forward to seek a solution.

It is an article which is useful not only to mills but also to other industrial organizations. It is an article which offers *profits*. It is an article which must be remembered for all times. It is written in a very simple, concise, logical way and the subject is dealt with masterly. It gives a solution which is the only solution. There is no other. There cannot be any.

P. B. JOSHI.

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More Comments on the Monthly

Editor, TEXTILE WORLD:

We have received the June issue, and want to say that we are highly pleased with it in every respect, in the get-up and quantity and quality of reading matter, as a great many of the articles are very interesting and profitable.

C. E. HUTCHISON,
President, American Yarn and Processing Co.

Editor, TEXTILE WORLD:

A copy of the new TEXTILE WORLD which is now being issued monthly was received a few weeks ago and strikes me as being well arranged and very comprehensive in its scope. I feel that you are to be congratulated on the issue and wish you all success.

STANLEY H. WHEELOCK,
President, Stanley Woolen Co.

Editor, TEXTILE WORLD:

I liked the new form of the TEXTILE WORLD and think I shall be able to keep up with my reading of it better now that it is a monthly issue rather than a weekly one.

PHILIP M. TUCKER,
Philip M. Tucker Co.

Editor, TEXTILE WORLD:

Let me congratulate you on the new TEXTILE WORLD. It is a fine looking job and everyone in our organization agrees that there is a great improvement.

OSCAR S. TYSON,
President, O. S. Tyson & Co., Inc.

Editor, TEXTILE WORLD:

The monthly issues of the TEXTILE WORLD are a decided improvement over the weekly issues. Better reading material—if anything, more practical and interesting.

T. D. WARDLAW,
T. D. Wardlaw & Son.

Editor, TEXTILE WORLD:

I think what you are doing is entirely in order. I think it is an economy that will be appreciated by your readers and by the trade. I always read your paper with interest.

DONALD COMER,
President, Avondale Mills.

Editor, TEXTILE WORLD:

I feel that this is an extremely constructive move and certainly want to compliment you on the change.

J. KLEEB, JR.,
Agent, Pepperell Mfg. Co.

Editor, TEXTILE WORLD:

At the very outset of advance information to the effect that TEXTILE WORLD would be changed to a monthly issue, I had intended to register my personal disapproval of the change. . . . My own feeling has been all along that TEXTILE WORLD as a weekly magazine was working more in the prophetic field rather than the historic, and that in so doing was one of the outstanding magazines in the field. . . . I do believe in the final analysis you will find out that you have lost prestige on account of the change.

C. W. GADDY,
Manager, Knitting Department,
Wiscasset Mills Co.

Editor, TEXTILE WORLD:

I might also take this opportunity to compliment you on the fine issue you got out, which in my opinion sets a high standard for a textile publication.

C. H. HAZARD,
Hazard Advertising Corp.

Editor, TEXTILE WORLD:

Some weeks ago another textile paper wrote me, saying that they were debating whether to go from a weekly to a monthly publication, and what was my opinion. At that time I expressed the thought that I preferred a weekly because already there were some monthly textile publications and after reading the weekly the monthly was simply a review of past history happenings which I had already read.

After having made such a statement I was particularly interested to look over your first monthly publication, and I was doing it with more or less a predetermined prejudice. Frankly, I think you did a real job. I was particularly interested in the article by Loper, and I think it is that type of thing, or rather the care in working up special articles that have to be done in this type of issue to get away from the feeling of too much past history. If you continue as you have started out I think your monthly issues will be a success.

H. K. HALLETT,
General Manager, Kendall Mills.

[*Editor's Note*: Of total comments on change to monthly received to date, 95% are favorable and 5 % unfavorable.]

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced during previous issues. The subjects which were opened in May 28 and June issues are closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "About Secret Processes" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers'

ABOUT SECRET

"EVERY so often," said Superintendent Chase, "we develop some new method of doing a certain operation in this plant. Sometimes an individual overseer develops a process and sometimes we all work together. What I have been wondering about is whether we should try and keep such new methods secret, or whether we should show everything to a visiting overseer or superintendent. I have my own opinion but I'd like to have your reactions."

"It always seems to me," said Bill, "that when one plant goes ahead and develops something new it is plain silly to tell every Tom, Dick and Harry about it. After all, if we have enough ambition to spend time in working out an improvement I don't see why others, who have done no work, should get the benefits. It is all very well to talk about being broad-minded, but I can't see letting competitors have free what we spend time and money on developing. If we have ways of doing things in this plant that are better than those used in other plants, let's keep them to ourselves and cash in on the benefits."

"From time to time," Pete replied, "when we have talked of other subjects, I have pointed out that this 'secret' business is a lot of bunk. In the first place it is foolish to think that we have a monopoly on brains in this plant. Other plants are going to develop new and better methods and we can learn as much from them

Sharing Cost Data

Editor, Overseers' Round-Table:

IF I were a super I would not think of letting the overseer know full details about costs. If I had to be an overseer I should not expect the super to give me the full dope. The only things that would interest me would be to know that the work was going through satisfactorily and that my department was paying its way. If this were not so, then I would expect to be told about it and I could take the necessary steps to remedy. These facts should satisfy any intelligent man, and the overseer is above average intelligence or he would not have risen to that position.

H.R.

Editor, Overseers' Round-Table:

THE OVERSEER of every department in the mill should have full information about the costs in his own department and an intelligent understanding of mill costs in general. He is directly concerned in the product being manufactured and should be as well informed of his position in the costs of manufacturing as he is in the manufacturing processes.

If the overseer is working on a bonus system he is naturally interested in keeping within the limits of his expense budget and will attempt to operate at the most economical activity level. Supplying the overseer with a manufacturing expense and operating report and such other cost information that may particularly concern his department can do no harm and may shed considerable light on a phase of the business that the average overseer knows little about.

R. C. BOKUM.
Mohawk Carpet Mills.

Editor, Overseers' Round-Table:

THE QUESTION of mill costs is one of the most important things to the overseer, superintendent and everybody in general connected with the mill. To my mind every overseer should have full knowledge of the cost of his department as to labor, supplies or anything else that directly affects his individual department. For the superintendent to tell the overseer in general terms that his cost is too high is not enough, he should show him in particular and give him all of the facts connected with the cost of his department whether high or low. It is my idea also that we should go further than that. We should exchange figures with other mills running on the same line of work that we are.

Mr. Superintendent may think that he has the world beat a city block when it comes to cost and manufacturing, and he guards this fact as though it were a dead secret, when as a matter of fact there may be other mills that are beating him so badly that it isn't funny. My idea is that if the mills would exchange this information of cost, it would help everybody concerned. Even those who have the lowest cost might get some valuable idea from the man who does not have as low cost.

"OFFICE BIRD".

Editor, Overseers' Round-Table:

ONE OF the noticeable changes during the past decade has been the improvement in cost finding and cost publication. It is useless to gather costs if they are not placed where they will be a maximum benefit—the hands of the overseers.

Through trade associations, trade magazines, and financial statements the secrecy concerning practically all lines of endeavor has been banished. This was not done without purpose. Groups of allied manufacturers have gained much by comparison—then why not overseers?

An overseer that does not know costs may be said not to appreciate costs. Knowing costs is much the same as seeing the actual money spent.

Furthermore, without knowing detailed departmental cost I do not believe an overseer is capable of properly running his department. A detail of departmental costs gives the overseer the relative importance of the various components of his department from the management's viewpoint.

JOHN F. HOTCHKISS,
Charles P. Cochrane Co.

Editor, Overseers' Round-Table:

WHILE IT is true that few plants regard it as a worth while plan to furnish overseers with cost figures, it does not necessarily follow that those which do not are following the right policy. Many do not even furnish the overseer with a statement of his own department's costs each week or month, contenting themselves instead by having him up on the carpet when the figures run larger than they think they should.

If the overseers are not to be trusted

Round-Table

PROCESSES

as they can learn from us. If there were no interchange of ideas the whole industry would suffer by being backward. There is, however, another reason for not being secretive about things and I believe it is the most important of all. To give an example of what I mean, I once knew a plant that had a secret method for dyeing black. No one was allowed in the plant and the superintendent and overseers kept to themselves and didn't mingle with others in the industry lest the 'secret' slip out. This went on for years and the firm kept going in the red despite this marvelous 'secret' process. Well, to make a long story short, it came out eventually that this so-called 'secret' process was one that the rest of the industry had rejected years ago and had replaced with a much more efficient method. If you are going to keep secrets it usually means that you close your mind to progress. The originator of a new method gets a jump on competitors and cashes in for a time, and that is enough reward. I'm surprised at you, Bill, for talking against the free interchange of ideas, which means so much to real progress."

▸ **Do *you* believe that new methods developed in a plant should be kept secret?**

with cost figures, they should be gotten rid of, as no man should be in such an important key position unless he has the quality of discretion. If he is a "broadcaster" of company affairs, he is not qualified for departmental supervision, no matter how much knowledge he may have of a technical nature.

With cost figures in his hands, the competent overseer can make comparisons of his own department's operations from week to week, and in that way ascertain possibilities for improvement. In addition, when he has before him regular reports of other plant costs, he can understand and control to some extent at least, those factors in his own department which influence costs in other departments.

H. H. Iler,
Union Bleachery.

Editor, Overseers' Round-Table:

Costs are a vital element in the operation of a mill. The overseer should be thoroughly familiar with the various costs of labor, material and upkeep in his department and a chart showing the monthly variations will prove most helpful in locating increases and their causes. Where several kinds of products are made, requiring different grades and staples of cotton, accurate costs on each will frequently result in changes that are to the advantage of the mill and the employees.

Regarding knowledge by the overseers of all costs, I believe this to be for the best interest of the mill. Not all overseers will use this knowledge as they should, but by far the greater number are most anxious for the mill to succeed and are interested in doing all that they can to further its interests. Their suggestions and viewpoints are often good and changes are made that result in increased efficiency.

The Cotton-Textile Institute has done much toward establishing a uniform cost-finding system for mills on similar fabrics. The exchange of costs among such mills should result in great good to those mills showing costs above the average. High costs are usually the result of obsolete machinery, poor management or supervision and a knowledge of such in time would save many mills from failure. It might also result in establishing a selling price based on average costs and this would be the salvation of our industry.

T.

SUMMARIES

Experience. *While a few contributors believed that the "rolling stone" who had worked in a large number of mills made the best overseer when he settled down, and a few favored the man who had stuck to one mill, the majority stated that the best overseers were those who had worked in a fair number of plants and who had sufficient intelligence to get the best out of their experience.*

Costs. *Approximately 85% of the replies stated that an overseer should be given full information about costs, particularly in his own department. The principal argument was that an overseer needed such information to conduct his department intelligently.*

▼

Rolling Stones and Experience

Editor, Overseers' Round-Table:

That the wanderlust is a liability in preparing for a future in the textile business is proven by the number of those who return to where they started, in subordinate positions to those level-headed plodders who were "too slow" to see the golden opportunities offered elsewhere.

A knowledge of what other plants are doing may best be gained by studying trade journals, and the broad outlook boasted of by the rover is frequently a sham to cover his ignorance of those important details which the "stay at home" has at his finger tips.

The plodder who, by long services and close application to his work, proves dependable and able is soon in demand by other mills and being thoroughly grounded in the fundamentals of his position may roll with some assurance of gathering moss.

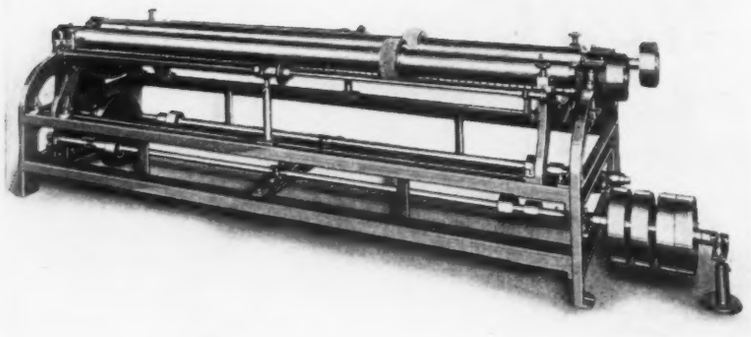
Observer.

Editor, Overseers' Round-Table:

Experience is a great asset no matter where or when you get it—provided you get the right kind. I knew a man who had a lot of experience, but it was of things that could not work. He would say, in reply to most suggestions, "I tried that ten or fifteen years ago and I have it all written down in a book that it would not work." The right kind of experience is of things that *can* be done.

In getting experience, the most important points may be the machinery, the help, processes before and after your department. Too much stress cannot be laid on machine knowledge, as your standing with your help is strengthened by the way you handle the various changes. The results you get are noted by the help and you cannot fool them long. Being friendly does not go as far as respect for your knowledge. In the past, with so many small mills, the overseer was chosen for his wide acquaintance with the processes of various mills, but today an overseer is expected to be a specialist and somewhat on an efficiency expert.

F. J. Rowell.



Adjustable Napper Roll Grinder

AN ADJUSTABLE napper roll grinder has been announced by B. S. Roy & Son Co., Worcester. The manufacturer states that the adjustable feature makes it possible to grind napper rolls of different lengths without lost motion in the traverse of the grinding wheel, and that economy is effected by having two rolls in operation at one time. While one roll is being surface ground, the other is being side ground. Traverse of wheels is obtained by reversing gear clutch, mounted inside end of frame, and length of traverse is controlled by adjustable dogs set on a bar directly above the traverse screw so that direction of traverse is changed when the grinding wheels come in contact with the dogs. When the direction of traverse is changed, the napper roll being side ground is reversed in direction, allowing the side grinding wheels to follow the spiral of the wire as it is wound on the rolls. It is claimed that the life of the wire is prolonged and the fine point produced gives better results in finishing. Grinder is furnished with or without motor drive.

Proportioning Pump

TRET-O-UNIT, an automatic proportioning pump for feeding chemicals, has been developed by "Proportioners," Chicago. Operation is controlled by rate of flow of untreated liquid. Pump injections are frequent and in direct ratio to quantity of fluid being treated. Reagent is not in contact with any part of device except cylinder and plunger which can be furnished in materials to resist action of reagent.

Constant-Tension Regulator

A REGULATOR, designed for use where it is necessary to have cloth wound or pulled at a constant tension, has been developed by Reliance Electric & Engineering Co., Cleveland. The regulator armature has a "torque" and a "spring" winding. The torque winding is connected in series with the driving motor, while the spring winding receives its power from the main line. When current in both winding is equal there is no movement of the regulator, but if the current in the torque winding increases or decreases (which means change in speed of the driving motor) a movement is caused in the regulator and the rheostat, which is coupled to the regulator shaft, corrects the voltage to the driving motor. Regulator is easily adjusted and is also stated to be well adapted for unwinding at constant tension in conjunction with a generator.

Roller-Bearing Pitman Roll

TO OVERCOME difficulties in lubricating Pitman rolls on spinning frames and twisters, Saco-Lowell Shops, Boston, have developed a roller bearing Pitman. The roller bearing is supported on a hardened steel stud which rests in recesses in the Pitman roll arm. Closely fitted steel disks are used to retain grease and exclude dust. The cam pressure is exerted on a hardened steel shell which revolves on the cylinders of the roller bearing. It is stated that use of the roller bearing prevents undue wear on the Pitman and preserves the accuracy of the bobbin build. The new roll can be applied to existing spinning frames and twisters.

Motorized Reducer

MOTORIZED speed reducer has been added to the line of enclosed speed reducing units built by Link-Belt Co., Philadelphia. Advantages claimed for motor with extended shaft include: increased efficiency and compactness; reduction of floor space; elimination of high-speed motor-shaft coupling. Roller bearings and continuous-tooth herringbone gears, running in oil, are used. Provision is made for 100% momentary overloads.

New Lines of Direct Current and of Splash-Proof Motors

GENERAL ELECTRIC CO. has announced two new lines of motors, direct current and splash-proof induction. The direct current motors are designed so that many variations, such as different degrees of enclosure, can be accomplished by using only a few different parts. Features: new pulley-end shields to protect motor windings; drop-forged feet welded to motor frame; improved insulation resistant to moisture and weak acids; 25% or more increase in speeds by field control.

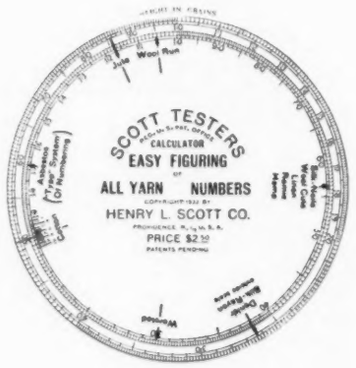
The splash-proof motors are designed for application where open motor operation is handicapped by splashing or dripping liquids. End shields are of special construction, with solid top half, and motor frame is supplied with one-piece cover to prevent entrance of liquids. Water-tight conduit box protects leads.

Two-Ply Stainless Steel

FOR use where corrosion is a factor, a two-ply stainless steel has been developed by Ingersoll Steel & Disc Co., Chicago. It is stated that the manufacturing process insures a perfect bond between the stainless steel and the carbon steel back and that the lower cost of the new metal as against solid stainless steel permits use in many additional textile applications. The two-ply stainless steel may be deep drawn, stamped, welded, formed and polished, and is now being produced in various gages and sizes.

Lifting and Tiering Truck

LIFTING and tiering truck for handling bales and cases has been developed by Clark Tructractor Co., Battle Creek, Mich. Truck inserts long steel fingers under any load that has 2 in. under-clearance, tilts it back, lifts it, carries it up to six miles per hour, and tilts it forward to tier at height as great as 50 in. Motive power consists of tractor type gas engine. Lifting mechanism actuated by hydraulic pressure supplied by oil pump.



Yarn Calculator

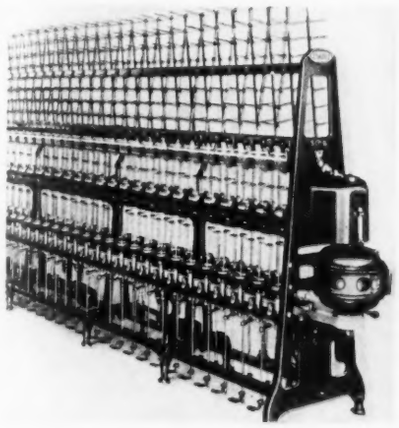
FOR figuring all yarn numbers, Henry L. Scott Co., Providence, has developed a handy calculator based on mathematical laws. Device consists of 4-in. celluloid disk with necessary figures and transparent disk which may be turned in accordance with grain weights and yarn to be sized. All that is necessary is to weigh 120 yd. sample in grains, set calculator, and read yarn size. Yarn numbering systems covered are cotton, worsted, silk, rayon, silk noils, wool cuts, linen, ramie, hemp, wool run, jute, asbestos, and the "Typp" system, or thousands of yarns per pound, proposed by TEXTILE WORLD, April 23, 1932. For simplicity, certain digits have been omitted on some of the systems, but addition of cipher gives desired result. Provision is made to correct known differences in moisture content of cotton yarn

AND PROCESSES

to 7% standard. Comparative sizes of different yarns are easily figured.

Ball-Bearing Pillow Block

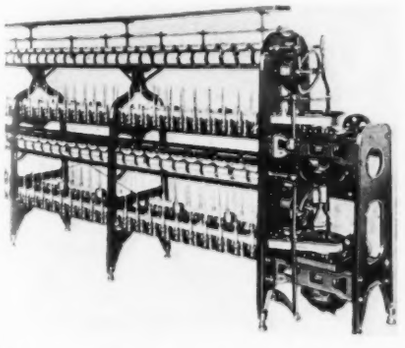
A SELF-ALIGNING ball-bearing pillow block, designed for use on light duty machinery, at moderate cost, has been announced by Dodge Mfg. Co., Mishawaka, Ind. Features include: housing of heavy gage steel with two-piece construction; hermetically sealed against loss of lubricant by use of automotive type piston ring grease seals; provision for both radial and thrust load capacity.

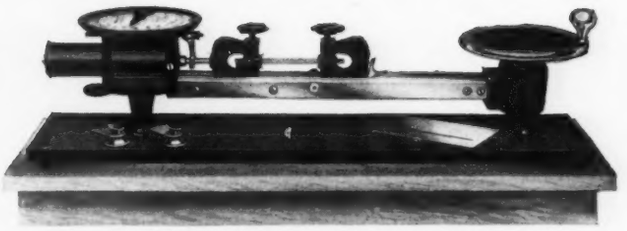


Two Improved Twisters

IMPROVED 5B doubler-twister, featuring self-oiling rings, lap separators and high speed, has been placed on the market by the Atwood Machine Co., Stonington, Conn. It is stated that, while the machine can be run at any speed the silk will stand, the most economical speed is tied up with the problem of selecting the particular type of ring equipment, feed rolls, etc., most suited to the product to be run, and that the company places at the disposal of its customers the accumulated experience of many years along this line. Machine will double up to sixteen ends and can be geared for any twist and speed, handling silk, rayon, fine cotton, etc.

Another development of the same company is the new "Utility" twister which is said to combine simplicity and reliable performance with moderate price. Standard equipment includes "Cone Top" spindles and Improved Atwood Step for maximum oil capacity. Design of machine permits modernization of "B" and "C" twisters into the "Utility" type.





Portable Testing Machine

HENRY. L. SCOTT CO., Providence, has announced a small, portable fabric testing machine which can be operated in either horizontal or vertical position. Machine has capacity of 0 to 100 lb. and is 30 in. long with weight of 20 lb. Use of novel spring head eliminates disadvantages of portable machine with dead weight lever. Simplicity of operation and accuracy are featured by the manufacturer. Finish is of hard baked black enamel, with exception of dial which is vitreous enamel on metal. Pointer stays at breaking point until manually reset.

New-Principle Lubricant

LUBRIPLATE, a new lubricating material which deposits a smooth coating of zinc on gears and bearing surfaces, has been introduced to the textile industry by Lubriplate Corp., Chrysler Bldg., New York. This lubricant—described as a white, stainless grease—is said to reverse the electrolitic action set up by metals at high speeds or under heavy stress, and thus to prevent crystallization, corrosion, flaking, and pitting of wearing surfaces. In addition, since it plates the moving parts with a film of metal, it reduces wear and insures smooth, matched surfaces. Among the advantages cited for Lubriplate are the following: minimizes machinery breakdowns, stops, repairs, and replacements; prevents rust stains on yarns or fabrics; has high lubricating value and lasting qualities; enables less frequent lubrication; is especially effective where high operating speeds have produced high temperatures. The new lubricant is available in various grades suitable for use on a wide range of textile equipment including cards, looms, bleaching and dyeing equipment, dryers, and tenters.

Inverted Bucket Steam Traps

TWO new inverted bucket steam traps, known as Nos. 70 and 71, have been introduced by Strong, Carlisle & Hammond Co., Cleveland. Valve arrangement replaces conventional air vent hole in the bucket. Valve is so arranged that a very small vent is open when the trap is filling. As the bucket begins to lose weight, the bucket valve is opened wide to permit escape of steam and air, the displacement of which with water causes the bucket to sink and opens the trap discharge valve. Bucket is suspended on tapered spindle and hole in stainless plate serves as the air vent. It is claimed that movement of the bucket up and down spindle prevents clogging of air vent by sediment or oil. Traps are made for pressures from 0 to 200 lb.

General Equipment

ALSO of interest to the textile field are the following improvements in general industrial equipment:

Automatically Primed Centrifugal Pump. Worthington Pump & Machinery Co., Harrison, N. J. Self-contained automatically primed centrifugal pumping unit comprised of ball bearing pump mounted with motor, together with Monobloc priming unit of wet vacuum type controlled by electric pressure switch.

Reversing Magnetic Contactor. Square D Co., Milwaukee. Three pole reversing magnetic contactor, interchangeable in rating and dimensions for a.c. and d.c. currents. Maximum rating 3 hp.

Boiler Water Control. W. A. Taylor & Co., Inc., Baltimore. Two outfits for ascertaining and controlling pH and phosphate content of boiler water, operating on Slide Comparator principle.

Binocular Microscope. Bausch & Lomb Optical Co., Rochester, N. Y. Wide field binocular microscope featuring inclined eyepiece for comfortable observation and new drum nosepiece for greater convenience in changing magnifications.

Superheater. The Superheater Co., New York. New and improved superheater of compact construction for horizontal return tube boilers. May be installed by regular plant attendants. No changes required in settings or arches or in other equipment.

Chronoflo Meter. Builders Iron Foundry, Providence. Electrically operated flow meter for use on steam, air, gas or liquid lines, having wide range and abundance of power. Chart record reliable to 1/12 maximum rate and total flow register accurate to 1/20 maximum flow is promised.

Rivet Bolt. Dardelet Threadlock Corp., N. Y. Fastening designed for applications that would ordinarily call for hot or cold rivets, or for body-bound bolts with locking device. Installed with hand hammer and wrench. Claimed to give stiff and strong joints.

Lined Steel Tanks. B. F. Goodrich Co., Akron. New form of rubber lining known as Triflex, used in conjunction with steel tank and brick sheathing, said to combine advantages of both hard and soft rubber for use in kiers, etc.

Metal Polish. Foster D. Snell, Inc., Brooklyn. New metal polish in powder form which incorporates necessary stabilizing and emulsifying agents so as to produce stable suspension when mixed with water.

Photo-Electric Scopometer. Bausch & Lomb Optical Co., Rochester, N. Y. New instrument using photo-electric cells for turbimetric and colorimetric measurements in laboratory, dispensing with human eye in making delicate color matches and notation of disappearance points.

QUESTIONS AND ANSWERS

Melting Points of Rayons

Technical Editor:

Are rayons melted by excessive heat? If so, what are their melting points? *(7800)*

Viscose, cuprammonium, and nitro-cellulose, like cotton, carbonize and decompose without melting. Acetate yarns, on the other hand, melt before they are decomposed by the heat. The actual temperatures of melting probably vary somewhat with the nature or composition of the acetate—i. e., with the degree of acetylation—but are said to be about 200° C., or approximately 392° F. A partial saponification of the acetate raises this melting point somewhat; i.e., 4% saponification raises it to 222° C. (432° F.), and 10% raises it to 230° C. (446° F.). This treatment is the basis of so-called iron-proofing of acetate yarns.

▼

Defects in Silk Hosiery

Technical Editor:

We are inclosing herewith a silk stocking in which you will note a light streak marked No. 1, and a dark streak marked No. 2. Will you give us your opinion as to the cause of each of these defects? *(7909)*

These defects were apparently caused by the reeler. The light streak is a short section of silk with one or more cocoons broken out. The dark streak is a heavy section where a broken end is doubled back or an extra waste thread caught up. Both of these defects are common in present-day silk. These sections can be analyzed by the throwster and spread out on the blackboard to show the defects.

▼

Designating Direction of Twist

Technical Editor:

With reference to the question and answer entitled "Designating Direction of Twist" on page 48 of your April 2 issue, it is a fact that there is considerable difference of opinion regarding the correct method of designating twist direction.

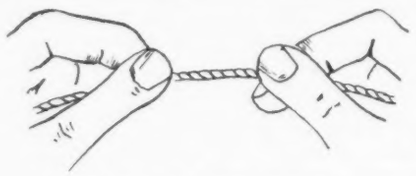
I am attaching a drawing illustrating the method for determination of twist in acetate yarn, which I think is helpful. The yarn should be held as shown, and the thread turned toward the holder between the thumb and forefinger of the right hand. If right twist, the strands will unwind; and if left, they will wind tighter.

I believe some attempt should be made in the trade to come to a universal agreement as to the terms used. Right twist is generally the clockwise twist, and a reverse twist is generally referred to as left twist.

ERNEST BOWER.

We thank you for your contribution to the discussion on this subject. We are aware that silk and rayon men most commonly apply the terms "right" and "left" to directions of twist in the manner you have specified, but they are by no means unanimous on this point; and in the textile industry at large the exactly opposite use of these terms is the more common. We believe that unanimity on this point throughout all branches of our trade is much to be desired.

As we pointed out on April 2, the distinction between right and left twists which is most logical and which we believe is most generally accepted is the following: *A yarn or cord has right twist if, when it is held vertically, the spirals or twists are seen to incline upward in a right-hand direction, and has left twist when the spirals or twists are seen to incline upward in a left-hand direction.* This is essentially the definition advanced by Committee D-13, the textile committee of the American Society for Testing Materials; and, as we stated on April 2, it would be an excellent thing if the minority would forget their prejudices and traditions to the extent of adopting it. To conform to this definition, if, when turning the thread toward you in the manner you describe, it should untwist, the original twist would be designated as "left."



Finding direction of twist

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Wool and Rayon Hosiery Yarn

Technical Editor:

What is the best twist for a wool and rayon 40/1 75-denier rayon? We have been using this on a 220 Scott & Williams machine and have tried three turns and five turns right and left but have a considerable amount of waste through rayon yarn causing a loop drawing through the carrier. We have eliminated all tension as much as possible, but our estimation of waste is rather high for successful operation. *(7918)*

From the standpoint of cost, it is desirable to prepare the yarn with as little twist as possible, or rather with as little twist as is required to secure uniform binding of the two yarns and a well broken-up effect in the goods after cross-dyeing.

A knitter who has experimented with various twists in a ply yarn of approximately the same size as this, has found that from five to seven turns gives satisfactory results. It is quite possible that the source of your trouble is lack of uniform tension on the rayon and wool threads. The 40/1 wool being of greater bulk than the 75-denier yarn will cause the finer rayon thread to wrap around the wool thread, the latter running almost straight with the axis of the ply thread. A greater length of rayon thread is thus used in a given length of the ply thread. When this thread is drawn off, the tendency is for the rayon to form loops as it makes the sharper turns in passing through the yarn guides.

We recommend the use of seven turns per inch in this yarn and advise that the rayon thread be supplied to the twister rolls under more tension. It is possible that the delivery rolls are not gripping the smaller and smoother rayon thread, thus permitting it to pass through with practically no tension. You will find it helpful to experiment with smaller amounts of twist and vary the tension of the rayon thread, with the idea of taking the slack out of this thread.

▼

Regain of Cotton Picker Laps

Technical Editor:

What methods are commonly used by mills for correcting the weight of picker laps for moisture content? *(7795)*

There are a number of correction tables, and most of them use Hartshorne's regain table as either a base or a guide. Many mills have found the use of a moisture balance the best means of determining just what is happening due to changes in humidity. The accompanying diagrammatic sketch shows a balance as constructed by a research organization a few years ago.

The following procedure can be utilized for making the necessary calculations and tabulations: Obtain a small sample of cotton weighing about 500 grains (atmospheric weight) and bake it bone dry; obtain the weight when bone dry. Let us say that in this instance it is 470 grains. Now make a small weight that will weigh 470 grains (weights from the grain scale may be used for this weight and the others which are required).

Condition	*Wt. in Grains*
Bone-dry weight	470
Bone-dry weight plus 2% regain	479.4
Bone-dry weight plus 4% regain	488.8
Bone-dry weight plus 6% regain	498.2
Bone-dry weight plus 8% regain	507.6
Bone-dry weight plus 10% regain	517.0

For practical use and for more accurate results regain weights from 1% to 12% should include a weight for 6½%, which is generally considered standard.

Next, tabulate the picker lap on the same basis. Take for this case a 40-lb. lap; i.e., a lap weighing 40 lb. with a regain of 6%. (For practical purposes the general practice is to have a standard weight of lap based on a 6½% regain.) Figure as follows: 37.73 lb. (approximately 37¾ lb.), bone dry; 38.48 lb. (approximately 38½ lb.), 2% regain; etc.

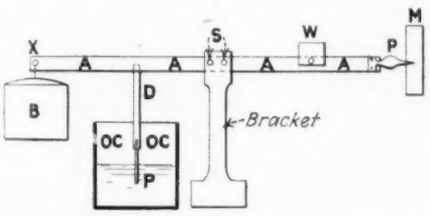
The next step is to mark or tabulate the chart marked with a letter *M* in the sketch. In view of the fact that a bone-dry lap will never be delivered from a

QUESTIONS AND ANSWERS

picker, or bone-dry cotton from an opening room, this bone-dry weight need not be shown on the chart.

Now take the 498.2-grain weight and place it in the basket. The pointer marked *P* should then rest near the center of the chart *M;* and if it does not balance properly, the adjustable or sliding weight marked *W* can be moved in the proper direction for balance. When the balance is correct, mark at this point the lap weight with 6% (40 lb.). Next remove the 498.2-grain weight and put in its place the 479.4-grain weight. When the pointer comes to rest it should show where to mark the 38½-lb. lap weighing. And so on. Only one bracket is shown in the sketch, but in reality there are two—one at each end of the piano wires.

Another method or table for corrections can be made by using Hartshorne's regain table as follows: First obtain dry- and wet-bulb readings, then the percentage of relative humidity, and then the regain (these are not needed before the table is composed, but will be needed afterwards). Use the same 40-lb. lap as we previously mentioned and the lap weights at the regains mentioned. Then obtain the regain as stated above Readings with this system will have to be taken practically every hour in order to note the regain. Mark on the lap scale, the weight wanted; or use the adjustable pointer that is attached to some scales. With this method the lap rod or stick will have to be considered. This holds true when the moisture-balance readings are used, unless the weight of the lap rod has been added to the tabulations.



A Lever suspended by piano wires, attached to adjustable screws at *S.*
W Adjustable or sliding weight for balancing
D Round ¼-in. wire with small plate at *P*
OC Oil cup for snubbing balance
B Basket for holding conditioned cotton
P Pointer designating weight of lap for any regain
M Chart of lap weights with known regains

Moisture balance

Some organizations use a correction method wherein weights are added to compensate for the changes in regain. This method is similar to the following: Using a 42-lb. lap with 6½% regain as the standard for this explanation, we proceed as follows:

Bone dry, 39.43 (approximately 39½) lb.; Add 5 lb. to scale = total 44½ lb. 2% Regain, 40.21 (approximately 40¼) lb.; Add 4¼ lb. to scale = 44½ lb. 4% Regain, 41.00 (approximately 41) lb.; Add 3½ lb. to scale = total 44½ lb. 6% Regain, 41.79 (approximately 41¾) lb.; Add 2¾ lb. to scale = total 44½ lb. 6½% Regain, 41.99 (approximately 42) lb.; Add 2½* lb. to scale = total 44½ lb. 8% Regain, 42.58 (approximately 42½) lb.; Add 2 lb. to scale = total 44½ lb. 10% Regain, 43.37 (approximately 43¼) lb.; Add 1¼ lb. to scale = total 44½ lb. *This figure is the basis for calculating the weights for the scale and represents the approximate regain of 6½% on the bone-dry lap. It is added to, not subtracted from, the 42-lb. lap.

The three methods described vary from each other if checked one against the other; but any one of them, if used persistently or conscientiously, will give satisfactory results.

▼

Yellow Stain in Semi-Decated Fabric

Technical Editor:

We are inclosing a sample of woolen which shows a yellowish discoloration. This defect usually shows only on the face for a yard or so, on the end which is wound nearest the finishing cylinder. The cloth is water shrunk, and after drying, is refinished on a semi-decating machine. The perforated steam cylinder has a covering of about 8 yd. of 10½-oz. burlap and several yards of No. 12 duck. Drycleaning does not remove the discoloration. Can you tell us what causes these stains? (7912)

Discoloration of this nature is usually caused by the use of burlap which is very old and has become a dark brown shade. In this case, if the least condensation takes place during the process of semi-decating, the color from the burlap will stain the ends of the fabric next to the cylinder. This stain will not show on dark colors, but will be obvious in all light shades. It is well to make certain that no condensation takes place during the process, but at the same time to be sure that the burlap is in good condition.

▼

Bars in Full-Fashioned Hose

Technical Editor:

Enclosed you will find a full-fashioned stocking made from four-thread, 10-turn silk. As you will note, the stocking is full of "bars" which look like loose stitches. Could this be caused in throwing? (7903)

The silk is found to be four-thread, 10 turns throughout; that is, there is no variation in twist. Therefore the trouble is not in throwing. The so-called loose stitch occurs at intervals of exactly 26 in., and the defect is caused by a splitting of filaments at the white streaks, probably a partial degumming.

After coning, the yarn may have been slightly lively; and to set the twist better it appears that the coned silk was subjected to steam. A condensation of hot water must have collected at the top section of silk on the cone. For example, an 8-oz. cone was marked at the top and bottom with India ink, then taken off carefully—and the space between spots was approximately 26 in. We believe that when the stockings are degummed, dyed, and boarded the "bars" will almost disappear.

▼

Tarnish-Proof Cotton Felt

Subsequent to the publication in the May 21 issue of TEXTILE WORLD of an item describing the processing of textiles with silver salts, we have been advised of another method of treating fabrics and other materials to prevent tarnishing of silverware. This process, which is protected by U. S. Patent 1,561,650 and controlled by Welmaid Mfg. Co., Chicago, is based on the ability of a solution of lead acetate and glycerin to remove sulphur and moisture from the air more readily than the same sulphur gas can be absorbed by the silverware itself. It is stated that this process has been tested in a number of laboratories, including those of Armour Institute and several of the large silverware companies, and in each case has proved itself entirely satisfactory.—*Editor.*

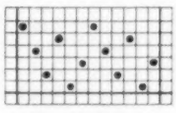
▼

Six-Shaft Satin

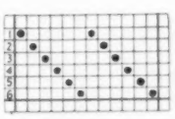
Technical Editor:

Please give me the correct chain pattern for a six-shaft satin for both straight-draft and skip-draft harness. (7915)

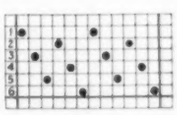
It is really impossible to obtain a perfect satin on six shafts of harness, and this six-shaft satin is most commonly called a broken-leaf satin. The following rule should be followed: Divide the number of harnesses or shafts in two parts, which must be neither equal nor multiple as compared to each other. Furthermore, it must not be possible to divide both parts by a third part. After finding this number, which is called the counter, commence to add, beginning to count from 1 until all shafts or harnesses are taken up. For example, suppose we have a satin weave for five-shaft harness. Divide 5 into 2 and 3. Commence to add two points as follows: 1 + 2 = 3 + 2 = 5 + 2 = 7; or 2 + 2 = 4 + 2 = 6, or one repeat of the weave.



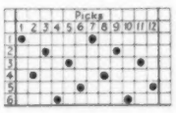
6-shaft satin



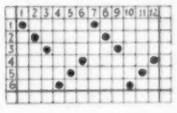
Straight draw



Skip draw



Loom card



Loom card

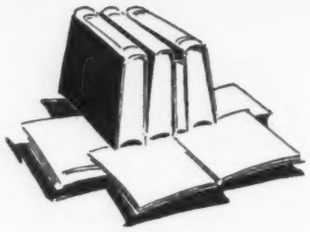
NEW PUBLICATIONS

WORSTED CARDING AND COMBING; by John R. Hind; Isaac Pitman & Sons, New York; 205 pages, 7⅞x4¾; 24 diagrams; $2.25.

This latest addition to the literature on the early processes of worsted-yarn manufacture is written by a member of the inspecting staff of Technical College, Huddersfield, England. Logically it begins with descriptions and a comparison of preparing and carding, and follows with a chapter on back-washing. Under combing are described in detail the Noble, Lister, Holden, and Rectilinear combs and their operation. The next to the last chapter discusses the two gilling operations which follow combing and takes up top conditioning, regain, wrapping, ticketing, and packing. The final chapter covers repair costs, economics, and other matters of interest to management. The book contains the calculations required in the various processes and includes numerous tables.

FASHION MERCHANDISING; Paul N. Nystrom, New York; Ronald Press Co. 255 pp.; $4.00.

Coming at a time when textile manufacturers and the apparel trades are effecting economies by ruthless reductions in stylist personnel, Dr. Nystrom's book is at once a tonic and a challenge. He takes the view that fashion merchandising is a permanent and vital division of modern business, adding that it will assume more importance



than ever when the corner turns bringing us toward normal times. The volume points out the fallacy of limiting this activity only to the apparel divisions, and urges broader emphasis on fashion promotion throughout all industry.

"Easy selling of past decades," he writes in his preface, "is not likely to return soon," and he adds: "Success depends on being ahead of competition. The purpose here is to suggest lines along which differential advantages in the field of fashion merchandising may be legitimately created and promoted."

CENSUS OF DISTRIBUTION: 1930. (Preliminary.) Retail Distribution in the United States. Washington, D. C.: Bureau of the Census, Department of Commerce.

Textile producers and manufacturers will find important cues to modern distribution trends in this comprehensive compilation. The volume, which comprises 129 pages, classifies retail distribution by geographical location and by principal businesses. Textiles are represented mainly in the apparel and in the furniture and household groups. Statistics are given covering community and State populations, total of stores per community and total of sales in dollars. The volume will be of especial interest and value to textile houses planning national distribution schedules.

Business Literature

Silk Oiling Device. Biddle-Gaumer Co., 3846 Lancaster Ave., Philadelphia, Pa. To process or lubricate gum-silk, rayon, or mercerized threads on any machine.

Spoolers, Automatic. Barber-Colman Co., Rockford, Ill. Points out that between 80 and 90% of improvement in weaving is due to automatic spooler, and only 10 to 20% to high-speed warper.

Spindles, Roller Bearing. SKF Industries, Inc., 40 East 34th Street, New York. Comparison of the efficiency of SKF roller-bearing spindles and plain-bearing spindles as found in an American mill in 1931.

Steam Engines and Generating Sets. Troy Engine & Machine Co., Troy, Pa. Results of power surveys made in six representative concerns.

Switch, Magnetic. General Electric Co., Schenectady, N. Y. Specifications and descriptions of standard, general-purpose types.

Finishing Tubular Knit Goods. Grand Rapids (Mich.), Textile Machinery Co. in well illustrated folder describes advantages of General Upright Finisher II which steams, calenders, rolls and measures all kinds of tubular knit goods.

BUSINESS NEWS

J. Fred Welch, Charlotte, N. C., formerly of the firm of Welch & Brookshire, which was dissolved June 23 by mutual agreement, will continue the business as a manufacturers' agent handling the same lines of textile machinery and supplies.

The Kron Co., Bridgeport, Conn., has appointed the following agencies for its line of improved industrial scales: Industrial & Commercial Scale Co., 121 North Brevard St., Charlotte, N. C.; J. Kirk Rowell, Urban Building, Louisville, Ky.; Williams, Cole & Wolff, Inc., 744 North Fourth St., Milwaukee, Wis.

Consolidated Products Co., Inc., dealers in used machinery and equipment, have removed to a new suite of offices on the twentieth floor at their present address, 13-16 Park Row, New York.

Michigan Alkali Co. has appointed Merchants Chemical Co., Philadelphia, as direct local representative, with Fred E. Loud, resident manager.

R. L. Sjöström & Co., Lawrence, Mass., have recently been appointed sole New England representatives for H. Krantz & Sons, Aachen, Germany. The Krantz company build dryers, carbonizing machines, dyeing machines, continuous decatizing machines, extractors and other machinery of this type. There are numerous Krantz installations in the United States in mills like the Arlington, American Felt and others.

Among recent installations of Barber-Colman equipment are: D. E. Converse Co., Glendale, S. C., a Barber-Colman automatic spooler and super-speed warper; Erwin Cotton Mills, No. 3, Cooleemee, N. C., an additional Barber-Colman automatic spooler and super-speed warper.

Robert K. Plummer, formerly assistant sales manager of Gears & Forgings, Inc., Cleveland, Ohio, has joined the sales staff of the Perkins Machine & Gear Co., Springfield, Mass. He will represent Perkins in the Cleveland and Chicago territories.

Announcement is made by J. S. Tritle, vice-president and general manager of the Westinghouse Electric & Mfg. Co., of the appointment of E. C. Brandt as manager of renewal parts in all Westinghouse plants.

Alfred Suter, New York, textile engineer, manufacturer and importer of yarn and cloth testing apparatus, sailed for Europe Aug. 11. He will spend several weeks on the Continent and in Great Britain studying latest developments in textile mill equipment there.

Worthington Pump & Machinery Corp., Harrison, N. J., will transfer and consolidate the designing, engineering and manufacturing activities formerly carried on at Cincinnati, Ohio, with those of the Buffalo, N. Y., manufacturing plant.

L. Floyd Tiemann, manager of the Pacific sales division of The American Laundry Machinery Co., has resigned, effective Sept. 1. Vacancy will be filled by promotion of Harry E. Hoes, at present assistant general sales manager.

Litchfield Shuttle Co., Southbridge, Mass., has been sold to Albert W. Leon, its largest creditor, who has acted as general manager of the plant during bankruptcy proceedings of the last year and one half. Mr. Leon will carry on the business.

Daniel N. Whitlock, who resigned as national representative of the Merco Nordstrom Valve Co. in April, has rejoined the National Oil Products Co., Harrison, N. J., manufacturers of sulphonated, soluble and emulsifiable oils and their products. He will serve as a special representative in the Missouri, Kansas, Oklahoma territory. The National Oil Products Co. has increased its tank farm by the addition of two new tanks for storage of raw materials, with a capacity of 200,000 gal.

All kinds of fires and methods of extinguishing them were shown on July 14 in the annual demonstration of Pyrene Mfg. Co. at its Newark, N. J., testing grounds. Over 300 interested fire chiefs, maintenance and plant management engineers attended. All types of flammables were used from high-test gasoline to the more common combustibles such as wood and textiles. The wide Pyrene line was displayed in action—Guardene (soda and acid), Phomene and Pyrene in both manual types and special automatic systems. Of textile interest was extinguishing a fire in oily cotton waste. Pyrene on contact with the heat of the fire volatilizes into a heavy inert gas which halts combustion. It does no damage which might not be done by wet chemical extinguishers it is said.

INDUSTRY-WIDE EVENTS

THERE is one vital consideration to be kept in mind in our thinking on the question of the flexible work day and week, or the shorter work day and week, or related propositions now engaging national attention: The objective is far bigger than class prejudices or competitive antagonisms, and attempts to reach that objective should not be marred by the injection of narrow self-interest.

As we see it, the aim is two-fold: first, to apply remedial measures to the present emergency; and, second, to devise plans to prevent recurrence of similar unemployment crises in the future.

We believe that, for the present, concentration on the first of these aims is advisable. We do not believe that hasty action for the broad future, under the stress of emergency, would promise the most constructive results.

Nevertheless, we believe further that everyone of us should be thinking of that broad future—and in broad terms. What every intelligent person desires is a fundamental condition which will insure continuing occupation to all who want it. Achievement of that end will serve the interests of all of us far more effectively and more permanently than will the attainment of temporary advantage by any one group or any one class.—*Editor.*

Broad Drive for Trade Acceptance Use

AN ORGANIZED nation-wide drive is under way to encourage the use of trade acceptances as a means of stimulating business and strengthening the commercial structure of the country.

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Textile Industry Has Good Safety Rating

LOST-TIME injuries during 1931 in textile mills reporting to the National Safety Council averaged 9.11 per 1,000,000 hours worked; days lost were 0.58 per 1,000 hours worked. These rates give textile mills a standing of third in frequency and fourth in severity among 28 major industries. The rates compare favorably with 15.12 for frequency and 1.72 for severity in industry as a whole.

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Manufacturers and Wholesalers Meet

THE RELATION of the wholesale distributor to textile manufacturers was greatly clarified and improved as the outcome of a joint conference of both groups held July 14 at the Pennsylvania Hotel, New York, under auspices of the Wholesale Dry Goods Institute. The meeting, which was notable for the spirit of cooperation evident among distributors and manufacturers present, delved deep into the current problems of distribution. The report of the institute steering committee looking to solution of the practice of manufacturers selling to wholesalers and retailers at the same price, was favorably received.

The chief features of this report were: control by manufacturers of resale prices to avoid dissipation of wholesalers' margin insofar as possible; less "price" selling by wholesalers; closer coordination between both groups and effort toward mutual helpfulness; and agreement by wholesalers to handle only non-competing lines and to carry sufficient stock as to fully represent the manufacturer in a given territory. Flint Garrison, director-general of the institute, George W. Aufderheide, of Bliss Fabyan & Co., and DeWitt Peterkin of Pacific Mills were among the speakers. Richard L. Moyle, of Griswoldville Mfg. Co. presided.

Textile Calendar

Carolina Yarn Association, Annual Golf Tournament, Roaring Gap, N. C., Sept. 16 and 17, 1932.

National Association of Cotton Manufacturers, annual meeting, Copley-Plaza Hotel, Boston, Sept. 29, 1932.

Southern Textile Association semi-annual meeting, Greenville, S. C., Oct. 21, 1932.

Southern Textile Association, semi-annual meeting, Greenville, S. C., Oct. 21, 1932.

Tenth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Dec. 5 to 10, 1932.

American Society of Mechanical Engineers, annual meeting, New York, during week Dec. 5 to 10, 1932.

Silk Association of America, annual dinner, New York, January, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Feb. 27 to Mar. 4, 1933.

OBITUARY

ALEXANDER I. MITCHELL, aged 66, president of the Cyril Johnson Woolen Co., Stafford Springs, Conn., died July 23 at his home in Stafford Springs after a brief illness. Mr. Mitchell was president of the Johnson mill for about 35 years.

HUGH NEISLER, manager of the Pauline plant of Neisler Mills, Inc., Kings Mountain, N. C., died in a Charlotte (N. C.) hospital July 19 following a short illness.

SAM BOWERS, president of the Royston (Ga.) Spinning Mills, was found dead July 12 in the office of the plant.

T. T. SMITH, secretary, Cannon Mills Co., Kannapolis, N. C., died at his home in Concord, N. C., July 18.

CHARLES N. ROBERTSON, aged 72, president of the Robertson Bleachery & Dye Works, Inc., New Milford, Conn., which he founded in 1917, died July 8 in New Milford.

ERVIN R. LIBBY, president of the Lowell (Mass.) Felt Co., died July 16, aged 57.

HENRY A. FIFIELD, head of the sales department of B. B. & R. Knight, Providence, R. I., for 47 years, died recently at the age of 81 years.

HARRY S. BARCLAY, treasurer of Liondale Bleach, Dye & Print Works, Rockaway, N. J., died suddenly at his home.

DAVID STEIN, recently with Thomas Oakes & Co., Bloomfield, N. J., at one time proprietor of the Phoenix Woolen Mills, East Greenwich, R. I., died in Newark, N. J.

THEODORE J. YUND, last surviving member of the original firm of Yund, Kennedy & Yund, Amsterdam, N. Y., died July 24, aged 80. He entered business in 1886.

ROBERT E. MORREY, president and treasurer of the Shelton Textile Fabric Co., Shelton, Conn., died July 29 at the New Haven Hospital. He was 62 years of age.

HEINRICH E. F. SANDHAGEN, senior partner in Passavant & Co., dry goods factors, died at his home in Kerhonkson, N. Y., July 16. He joined the firm in 1893.

DR. LOUIS J. MATOS, who until retirement in 1927 had been associated with National Aniline & Chemical Co. and its predecessors for 23 years, died recently.

CHARLES VICTOR HARDING, president and general manager of the Harding Carpets, Ltd., Toronto, Canada, which he founded, died on July 22, aged 55 years.

CHARLES EDWARD OVENSHIRE, treasurer and general manager of the Minneapolis (Minn.) Knitting Works, died at his home in Minneapolis, July 22.

JAMES E. MOORE, aged 58, president of the Grace Hosiery Mills, Inc., Burlington, N. C., died at his home there July 27.

TEXTILE WORLD'S

Cotton Digest

THINGS are happening in cotton. Prices advance about a cent a pound in one day, following the issuance of the unexpected government crop forecast of 11,306,000 bales. Reports of the formation of a syndicate of cotton mill interests to purchase the cotton held by the Farm Board, while unconfirmed, add strength to the situation. Cotton goods sales broaden considerably. Denim prices are advanced twice in one week.

All of this is helpful—and decidedly welcome to a market which has famished for good news so long.

But equally helpful is the news from Spartanburg that print cloth manufacturers, meeting there, recommended continuation of the curtailment program. The industry has got to keep the brakes on, no matter how much improvement develops. Those who ignore the over-supply of raw material which hangs like a shadow over the market despite the lower crop prospects for this year, and who ignore the potential over-capacity to produce, are not facing facts.

Better times beckon. Thanks to the efforts of the majority, the industry is in a position to respond quickly to them. *But:* walk, do not run!—*Editor.*

N.A.C.M. Annual Meeting on Sept. 29

THE National Association of Cotton Manufacturers, by action of its board of government, will hold its annual meeting on Sept. 29 at the Copley-Plaza, Boston. This is a one-day meeting with morning and afternoon business sessions, and the banquet in the evening.

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Details Lacking on Reported Mill Syndicate

REPORTS of the formation of a syndicate of cotton mill interests to purchase the cotton held by the Farm Board were not confirmed at the time of going to press. Men and organizations usually "in the know" on such matters professed entire ignorance.

That this might be a logical outcome of previous steps, including the proposed extension of credit to purchasers of agricultural commodities, is conceded. It is known that plans in this direction, as regards cotton held both privately and by the Farm Board, have been discussed with bankers. However there is no definite information available concerning the identity of the cotton mill interests, if any, which are involved in the reported syndicate.

This entire development was overshadowed by the unexpected government crop forecast of 11,306,000 bales, issued on Aug. 8, and by the bullish market which immediately resulted.

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Sliding Scale Tax Abatement

THE mayor of Lewiston, Me., has been authorized to sign an agreement with Col. G. Edward Buxton, president of the Bates, Androscoggin and Hill mills of that city, whereby taxes will be abated in accordance with the number of workers employed. Abatement will scale down from $97,000 if the mills operate 60% to $24,250 if the mills operate only 40%. Average loom capacity for the three mills will be used as a basis and there will be no abatement if the plants operate at less than 40% of capacity. The agreement covers the period between Aug. 15, 1932 and Feb. 28, 1933.

•

Jute Tariff Plea

ARGUMENTS in favor of an adequate protective tariff on jute and jute products are given publicity in a pamphlet recently prepared and distributed by the American Cotton Manufacturers Association. Reasons are advanced why such a tariff would economically benefit the southern cotton farmer and the cotton textile manufacturer. It was mailed to members with the request that they call it to the attention of their Congressmen and Senators, local newspaper editors, civic organizations, etc.

•

Print Cloth Group Extends Curtailment

LOOKING toward the prevention of unwarranted increases in production schedules, print cloth manufacturers, representing 50,000 looms, met in Spartanburg, S. C., Aug. 2, and recommended that the curtailment program adopted by an overwhelming percentage of the group for the four-month period ending July 31 be continued throughout the remainder of the year. In addition, print cloth mills were urged to eliminate the equivalent of one week's production during August and again in September.

The print cloth committee, of which W. D. Anderson, Sr., was elected chairman to succeed Dr. W. C. Hamrick, recommended that the group be organized into a permanent association for the purpose of collecting and disseminating information on production, sales and prices.

•

Sloan Sees Real Chance for Improvement

REASON for encouragement in the general business outlook was seen by George A. Sloan, president of the Cotton-Textile Institute, just before he sailed July 22 for a brief vacation abroad.

So far as the cotton textile situation is concerned, Mr. Sloan stated:

"Today there is a real opportunity for improvement in our industry if only the mills will continue their individual efforts of the past few months in keeping production in balance with demand and couple with this a demonstration of greater courage in resisting sales below the replacement cost of production."

•

Industry at Low Ebb During June

STATISTICS which have recently been released show June as the low point in the cotton industry for many, many years. June cotton consumption is given by the Department of Commerce as 320,783 bales, the lowest of any month since pre-war days; production of carded cotton cloths amounted to 200,577,000 yd., the lowest weekly average production since comparable records were started in 1928, according to the Association of Cotton Textile Merchants of New York; spindle activity was at a rate of 57.7% of capacity on single shift basis, the lowest since comparable figures were started shortly after the war.

Fortunately, the immediate situation

is brighter, due to the very encouraging fabric sales in the latter part of July and the estimate of over 5,000,000 lb. of mercerized yarn sold during the month. Firmer prices were also in effect.

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Cotton Price Comparisons

THE following are prices of key items in the cotton industry. As usual prices on first of the month are given. These had, however, been superseded by Aug. 10 by higher figures as the market turned sharply up. Cotton on that date was 7.15c.; 20s/2 carded peeler warps were 15c. and 38½-in. 64x60s were 3⅝c. Prices at first of month with comparisons follow:

	Aug. 1	July 1	Aug. 1 1931	Aug. 1 1930
Spot Cotton, N. Y.	6.05	5.75	8.15	12.80
Ditto, high previous month	6.07	5.80	10.35	13.65
Ditto, low previous month	5.75	5.00	8.25	12.45
10s frame spun yarn	12 c	10½c	16½c	23 c
10s/2 carded skeins	12 c	11 c	17½c	22½c
20s/2 carded peeler warps	14 c	13½c	19½c	24½c
60s/2 combed peeler warps	35 c	33 c	48½c	59½c
60s/2 mercerized cones	55 c	50 c	67 c	77 c
37-in., 3-yd. drill	4⅛c	4⅛c	67 c	8½c
38½-in. 64x60s	3½c	3 7/16c	4⅛c	5⅛c
36-in. 4-yd. 56x60s	3⅛c	3 7/16c	5½c	7 c
Denim, 2.20s	8 c	8½c	11 c	12½c

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Carolina Yarn Men Plan Golf Tournament

MEMBERS of the Carolina Yarn Association, at a recent meeting held in Charlotte, N. C., decided to hold their annual golf tournament at Roaring Gap, N. C., Friday and Saturday, Sept. 16 and 17. Trophies will be awarded at the banquet Saturday evening, according to an announcement from C. C. Harding, of Charlotte, president of the association.

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Combed Yarn Spinners Urge Price Stabilization

LACK of stability in combed yarn prices was declared to be the principal cause of excessive unemployment in that division of the industry at a meeting of combed yarn manufacturers in Gastonia, N. C., July 29. Suggestions for effectively meeting the acute unemployment situation were discussed by leading executives but no official action was taken. Slashing of prices, in many cases below the cost of production, was said to have resulted in such uncertainty in the sales yarn markets that buyers would not purchase except on a hand-to-mouth basis.

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Some Statements in Black Ink

SMALL profits, though pale looking when compared with financial reports of other years, offer some encouragement. Dwight Mfg. Co., Somersworth, N. H., and Alabama City, Ala., reported net profit of $131,529 for the fiscal year ended May 28, 1932, after an inventory write-off of $206,382 and depreciation of $152,500. This performance was infinitely better than that of the previous year when Dwight lost $491,753, after charges, or during 1929-30 when the loss amounted to $825,883.

The semi-annual report of Riverside & Dan River Cotton Mills, Danville, Va., showed a profit of $77,779 for the first six months of 1932, after an inventory write-off of $110,618 and depreciation of $329,131. Shipments for the six months' period exceeded those for the corresponding period of 1931 in pounds and in yards, but were $200,000 less in dollar value.

The Kendall Co., Boston, Mass., for the 24 weeks ended June 11, 1932, reported net profit of $17,083, after depreciation, bond interest, taxes and provision for dividends on preferred stock of subsidiary companies in the hands of the public, as compared with net profit of $240,510, after similar charges, in the corresponding period of 1931.

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Cotton Mill News

ERWIN COTTON MILLS CO., Plant No. 3, Cooleemee, N. C., has awarded contract to A. K. Adams & Co., Atlanta, Ga., general contractors, for the construction of an addition, approximately 25 x 380 ft., to the present main mill building. J. E. Sirrine & Co., Greenville, S. C., prepared the plans.

GREEN RIVER MILLS, INC., Tuxedo, N. C., will spend $20,000 in improvements and repairs to mill buildings.

ANDERSON (S. C.) COTTON MILLS have completed repairs on the mills totaling $65,000. No. 2 plant has been entirely reroofed and a new floor has been placed in the spinning department on the ground floor of plant No. 1.

EUREKA COTTON MILLS, Chester, S. C., a division of LANCASTER (S. C.) COTTON MILLS, have practically completed the erection of Plant No. 2 which will house machinery to be transferred from the old Springstein plant located in Chester.

PACIFIC MILLS, Hampton Division, Columbia, S. C., has replaced some of its old spinning with 122 frames transferred from the company's plants in Lawrence, Mass. The installation of 79 Model "E" 40-inch looms, also moved from Lawrence, made it necessary to build a small plant addition.

W. H. DRAPER & SONS Co., Rocky Mount, N. C., of which A. L. Draper, of Troy, N. Y., is president, are building an addition to their plant. The new addition, which will be 100 x 80 ft., will be completed about Sept. 1, and is to house machinery that will be transferred from the main plant in Troy.

CALLAWAY MILLS has been incorporated as a merger of the Callaway group of mills according to announcement by Cason J. Callaway, president on Aug. 2, "to obtain the greatest economy and efficiency possible through simplified corporate structure." The company controls 133,900 spindles and 2,400 looms.

EASTSIDE MFG. CO., Shelby, N. C., was placed in voluntary bankruptcy July 26 and, upon order of the Federal court, J. R. Dover, Jr., president of the company, was named receiver.

PHOENIX MILLS CO., King's Mountain, N. C., was granted a petition for voluntary bankruptcy in a court order signed by Judge E. Yates Webb, July 26, and E. A. Hamrick was named receiver.

AMERICAN NET & TWINE CO., Anniston, Ala., has awarded contract to the A. K. Adams & Co., Atlanta, Ga., general building contractors, for the addition of another story to Plant No. 1, 107 x 80 ft., and also for a dyehouse addition, 75 x 50 ft.

SWIFT MFG. CO., Columbus, Ga., recently placed contract with A. K. Adams & Co., Atlanta, Ga., for alterations and additions to existing buildings.

SELMA MFG. CO., Birmingham, Ala., is planning installation of a power plant at its mill, reported to cost over $30,000, with equipment.

TOULSON YARNS, INC., Stratford, Conn., novelty yarns, has filed voluntary schedules in bankruptcy.

COLUMBIA (TENN.) COTTON mills property has been acquired by Lex Watson through purchase of its bonds.

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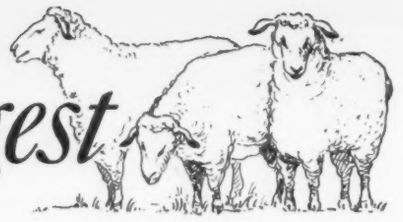
TEXTILE WORLD'S

Wool Digest



THE slight turn for the better in wool goods noted last month, has developed noticeably during the last few weeks. Prices are firmer; several sellers have raised levels on specialties; sentiment throughout the trade has improved.

We wish we could break off this comment here. It seems a shame to qualify any encouraging remarks at a time when encouragement is so much needed. *But* there is a real danger ahead: over-confidence. And there is only one preventive: caution in production schedules.

The industry has everything to gain, and nothing to lose, by sitting tight. Noticeable as is the improvement, it is still a frail thing; it could easily be dissipated by any forced activity—*Editor.*

Advancing Prices Aid Goods Market

PRICE advances by firms specializing in certain lines have had a healthy psychological effect on the wool goods market. The opening of the month found all levels firmer, with day-by-day demand steady though far from voluminous. As to a general advance, the outlook was uncertain; trade leaders held that such development hinged on three requirements: (1) increased fabric buying, (2) a better credit situation, and (3) a better retail movement. Improvement in price tone was partially offset by tendency toward over-confidence; certain mills were reported to be manufacturing for stock— a dangerous policy in view of uncertainties.

There were numerous rumors of advances by miscellaneous mills, but agents claimed these were not all confirmed by fact; it was pointed out that in a number of cases, manufacturers officially raised prices yet sold goods to old customers at pre-advance levels; discounts also were being given, which added to the price confusion. Two important companies have definitely advanced levels 2½c. on certain lines and this has had a tonic effect. The raw wool market has been active, some houses selling more in first week of August than in previous seven months.

•

Summer Rug Trade Optimistic for 1933

CURTAILMENT of output and a healthy retail movement during the season just closing, are believed to have put the summer rug industry in a comparatively good position for the 1933 season. While conditions leave much to be desired, prices in particular being uniformly unprofitable, the industry ends this season in better mood than it started. The chief gains, as cited by several New York manufacturers were: Better balance of stocks against sales, more intelligent promotion and steadier price levels.

•

Mohair Surplus Bought by Mills—Wool Encouraged

THE largest single purchase of mohair in the history of the trade occurred in July, when the National Wool Marketing Corp. sold 14,500,000 lb. of adult domestic mohair to the Sanford Mills and Goodall Worsted Co., of Sanford, Me. Large stocks of unsold mohair had been hanging over the market for many months. The beginning of the general buying movement, which has taken out of the market the entire surplus and also made extensive inroads into the smaller 1932 clip, was in March when the National Cooperative sold 5,000,000 lb. to carpet manufacturing interests who proposed to test on a large scale the use of mohair as a substitute for certain imported carpet wools. The price then named of 5¾c. was very low and caused a storm of protest in wool circles generally.

Following the sale to the Sanford interests by the National Cooperative, A. W. Hilliard & Son, of Boston, who had acquired the greater part of the new spring clip of unsold mohair in Texas, about 4,500,000 lb., re-sold the same to a group of regular users who, feeling that bottom had been reached, acquired this substantial quantity for use in their normal manufacturing operations. The mills named as buyers were: Collins & Aikman Corp., Philadelphia, Pa.; Abbott Worsted Co., Graniteville, Mass.; Massachusetts Mohair Plush Co., Lawrence, Mass.

The reaction of the wool trade has been distinctly favorable. While thus far this confident purchasing of mohair ahead of requirements has led only moderately to any similar speculative purchase of wool, it can be said, however, that price uncertainties have been practically eliminated; that the wool market has "found itself" and exhibits more of a coherent and united front than at any other time this year. Meanwhile, the Goodall Co. announced reduction in price of "Palm Beach" two-piece suits, from opening level of $9.00 to $7.20. Accepted resale price of $15 has been reduced to $11.85.

•

Sanford Mills Head Assails Price-Cutting

THE price-cutting and quality-lowering battle that has been going disastrously forward in the mohair industry entered a new phase in July with the announcement of Sanford Mills, world's largest mohair weavers, that they would refuse to join the latest price reductions and quality cheapening and would authorize the use of their trade name only on a basic quality of mohair velvet several grades above their competitors and higher in price.

Users of mohair fabrics, especially furniture manufacturers, were expected to receive the announcement with emphatic approval, as mohair velvets known for years as the most durable and most acceptable of covering materials have suffered severely through cheapening of quality brought about by savage price competition.

•

Yarn Spinners Confident

GROWING confidence among carpet yarn spinners had a favorable reaction on the Philadelphia carpet wool market toward the end of July, and wool merchants reported that their customers were predicting an early revival of activity in woven floor covering manufacture.

There has been a flurry of worsted yarn buying by men's wear and dress goods trades and prices are firmer. Knitters are slow and spinners still cut prices.

•

Blanket Prices Tend Firmer

THE all-wool blanket season, marked by widespread price activity, turned upward in August, while July trend had been downward. Peerless Woolen Mills, Rossville, Ga., announced that its new 3½-lb., 66x80 all-wool blanket had been advanced to $2.65; this number is available in solid colors and reversibles. When the number was first announced several weeks ago the price was $2.65, then said to be about $1.00 under the market. It was later reduced to $2.35. The same firm is now offering a 72x84 blanket weighing not less than 4 lb. at $3.25.

Late in July American Woolen Co. came out with two numbers both on a

lower price basis than formerly. One, a reversible all-wool, two-tone, 72x84, 4-lb., bound in silk, was priced at $3.35. The other is reversible, silk-bound and priced at $3.50. Part-wool blanket manufacturers admitted early demand was light but said this had nothing to do with decline in all-wool blanket prices. The last week of July brought some lively buying, chiefly for August sales, but general fall call had not developed as buyers are watching the price situation which broke after several seasons of fair stability but now gives promise of stability. Some makers are guaranteeing prices to Dec. 1.

•

New Nashua Blanket

NASHUA MFG. CO. has introduced a new line of reversible blankets known as "Nalsram," and containing 86% wool, 12½% silk and priced to retail at $6.25 to $6.50 in 72x84 and 70x80. The new blanket is available in a wide range of color combinations.

•

Carpet Institute Launches Quality Plan

THE quality control plan of the Institute of Carpet Manufacturers of America, which has been developing quietly for some months, will become effective this fall, Herbert Gutterson, president of the institute announced July 25. In an interview with a TEXTILE WORLD representative, Mr. Gutterson outlined his immediate program. A label, of historic origin, has been adapted for use of the institute and will be attached to all rugs and carpets made by institute members which conform to specifications set by the institute. The institute project is in line with the widespread movement to emphasize quality in textiles. Specifications governing manufacture of merchandise which will bear the label have been adopted by the institute's technical committee, which body cooperates with the Standards Council, another institute division, in making the plan effective. Because of the likelihood of later revisions, the code of specifications will not be made public. "The label," Mr. Gutterson said, "will give the floor covering purchaser a permanent and satisfactory guarantee of quality, since only merchandise conforming to the strict requirements of the specifications can bear this insignia."

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Swedish Crown Prince, Gustav Adolf (right) inspects a bolt of goods made of native wool, during recent "Swedish Wool Week" observed throughout that country.

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Price Trends in Wool

THE following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	Aug. 1	July 1	Aug. 1931	Aug. 1930
Fine and fine med. territory.....	$0.34	$0.34½	$0.56½	$0.71
Ohio 3/8s.....	.14½	.14½	.22	.29
Tops, fine, 64-66s..	.51	.54	.86	.96
Average 3/8s...	.43	.45	.64	.81½
High 1/4.....	.37	.39	.54	.71
Noils, fine.....	.37	.37	.39	.58½
1/4.....	.25	.25½	.32	.44
2-40s 60s wstd yarn	.85	1.10	1.32½	1.46
3192 serge.....	1.35	1.22½	1.65	1.90

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Angora Rabbit Breeding Urged

WIDESPREAD breeding of Angora rabbits in this country is suggested as a way to reduce the unemployed problem. In a circular now being distributed by the American Angora Wool Co., Philadelphia, Angora rabbit wool is declared to be "an immediate need of the textile industry"; asserting that this type has many advantages over other types of rabbit wool, the circular adds that Angoras are scarcer in this country than any other breed.

•

Black Leads Colors

BLACK was the dominant color up to July 1 in women's wear fall demand for American Woolen Co. lines, according to figures compiled by that company's sales promotion department. The standing of the different shades, as shown in sales, follows: black 50%, brown 28%, green 10%, red 7%, blue 3% and beige 2%.

Wool Goods Mill News

IT was voted at a special town meeting at Dover-Foxcroft, Me., to scale down the valuation on the American Woolen Co. plant there so as to approximate an abatement of $2,450 on the company's taxes.

GEO. H. GILBERT MFG. CO., Gilbertville, Mass., was subject of local negotiation early in August with a view to purchase. Plant had been closed since February and rumors were current that sale was near to a wrecking company. W. L. Holt, assistant superintendent, and L. B. Campbell, assistant treasurer, are endeavoring to raise capital to take over plant and start it up. The mill pays 46% of the town's taxes.

SAYBROOKE MFG. CO., INC., Hope Valley, R. I., recently organized to manufacture woolen goods, has taken over the local woolen mill of Henry D. Bailey, and has begun operations on a full time basis.

SANFORD (ME.) MILLS CORP. has put into effect a readjustment of wages affecting about 1000 operatives.

EMPIRE WORSTED MILLS, Jamestown, N. Y., and its creditors hope to continue operation of the company. The plan calls for payment to trade creditors of 70% of their indebtedness (30% in cash and 40% in five-year debenture notes), the raising of $50,000 in additional capital and a reorganization.

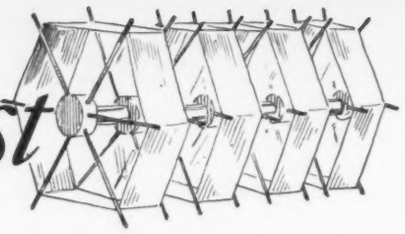
BIGELOW-SANFORD CARPET CO. directors authorized payment of the regular quarterly dividend of $1.50 on the company's preferred stock, at a meeting July 21. The dividend was made payable on Aug. 1 to stockholders of record July 23.

COLLINS & AIKMAN CORP. reports a net loss of $109,666 after depreciation for the three months ended May 28, 1932. This compares with a net profit of $982,155 after depreciation, taxes and reserves for contingencies, in the quarter ended May 31, 1931. Earned surplus was $727,339 on May 28, this year, the report showed, and during the quarter the company paid $111,807 preferred dividends.

KEZAR FALLS (ME.) WOOLEN CO. is building an addition to its plant. The new dam across the Great Ossipee River to be used by the mill is nearly completed.

TEXTILE WORLD'S

Silk Digest



THE new promotional activities of the Throwsters Research Institute, and the publicity that organization is giving to the folly of price-cutting, are further steps in its constructive program. In existence only about six months, the Institute has initiated plans for checking price rumors, for effecting cooperation between throwsters and weavers, for conducting a wage survey, for developing certain educational functions—and generally, for the stabilization and expansion of the industry it represents.

Consequently, it is a new but welcome addition to the ranks of organizations which are trying to develop sanity within the several branches of the industry. There is a virility about its work which is particularly gratifying—*Editor.*

Leaders Endorse Promotion Drive

A PROMOTIONAL campaign for silk is projected in the silk industry of various countries. Leading firms in the United States have replied favorably to an inquiry sent to the trade by Paolino Gerli, president of the Silk Association of America, Inc., to sound sentiment on the project. Mr. Gerli pointed out that in view of the general move toward emphasis on quality merchandise, it would be especially advantageous for silk producing countries to undertake at the present time to point out to the consumer the economy of purchasing quality silks, and the fact that their fineness and beauty of texture cannot be rivaled.

"No definite silk promotional plan has been formulated," Mr. Gerli said. "Such a campaign would, no doubt, emphasize the style prestige of silk, and undertake to discover new uses and new methods of distribution. It is understood that several silk producing and consuming countries are thoroughly in sympathy with such a move and would give it their support, and it is hoped that a silk promotional campaign will become eventually a world-wide project."

•

Silk Prices Rise 7% During July

THE primary market entered August stimulated and encouraged by consistent price advances over a period of nearly four weeks. Many points contributed to the improvement:—pick-up in general business, Paolino Gerli's statement that levels would decline no further, increased loom activity and the approach of the fall season. The situation was decidedly better on the Silk Exchange at the close of July when futures trading was active; traders said market sentiment was the strongest in 12 months. The Silk Association reported a 7% gain in spot silk prices during July.

There has been a marked acceleration of mill operation, making in turn for healthy raw silk contracting. The skeptics can view the improvements as temporary, if they will, and possibly it might be well to lean to the skeptical side for a time; but fundamentals point to consistent improvement; at least, gains to date are likely to be held. The firm technical position as evidenced by shortage of numerous grades, especially 20/22s, militates toward further advances on both sides of the Pacific. Increased fabric output for the present is sound, in view of depleted stocks and lack of fall merchandise in stores.

•

Susquehanna Mills In Receivership

SUSQUEHANNA Silk Mills, one of the leading broadsilk companies of the country, capital $6,254,200, was placed in temporary receivership July 18, by Judge Goddard, in the United States District Court. Henry Schniewind, Jr., president of the company, was named co-receiver with the Irving Trust Co. The appointment followed an equity action started by Huntingdon Specialty Co., textile fabricators, of Huntingdon, Pa., to whom the firm owes $405,801. Debtor corporation consented to the receivership. The complaint asserted that Susquehanna Silk Mills, while solvent, was unable to meet maturing obligations, the company's difficulties being attributed to losses suffered as result of the decline in raw silk. It was stated that the firm had sustained an operating loss of $2,000,000 during the last year.

The company's status is described as follows: assets $21,000,000 and liabilities $8,835,000. By court order, a meeting was scheduled for Aug. 15, to determine whether the receivership should be made permanent.

•

Weaving Yarn Demand Increases

THE Throwsters Research Institute in late July reported a decided increase in the demand for weaving yarn throwing, but a dropping off in the hosiery yarn demands.

The decline in hosiery yarn throwing is seasonable and nearly every year the knitters slow up production during July and August thereby affecting the demand for throwing. However, the hosiery yarn throwsters look for renewed activity on the part of the knitters early in September.

•

Schwarzenbach Concentrates

SCHWARZENBACH HUBER CO. Aug. 1 moved its sales department from the Schwarzenbach Building, 470 Fourth Ave., to 498 Seventh Ave., where the firm has taken the main floor and basement. The move permits the company to concentrate all its sales activities in the garment zone where previously only a sales branch unit was located. The transfer affects the retail, tie silk, umbrella and drapery divisions. Only the executive department now remains on Fourth Ave. and there were reports in the trade that the latter building later would be completely vacated.

•

Novelty Yarn Outlook

JULIUS A. MIGEL, recently appointed to the newly created post of general manager of the American Silk Spinning Co., sees a growing demand for novelty yarns during the coming winter season and plans to concentrate on developing that end of the business for the American company. Mr. Migel was president of J. A. Migel, Inc., novelty fabric manufacturers, which firm he organized 15 years ago.

•

Silk Association Holds Fabric Show

THE cutting-up and retail trades were the guests of the Silk Association at an unusually inclusive showing of fall broadsilk fabrics, July 20 and 21, at the association's New York offices. Nearly 40 leading manufacturers contributed to the display, which comprised several hundred fabrics. There were three divisions: costume silks, underwear and negligee, and trimming silks.

The showing was the first of the kind ever held by the Silk Association, and

had been arranged to permit fabric buyers a quick comprehensive review of what the industry offers for fall. Buyers have had a difficult problem in that respect this year, as virtually all manufacturers have abandoned formal showings due to business conditions.

•

Paterson Mills Organize

AN Association of Silk Manufacturers was formed by 200 Paterson, N. J., broadsilk firms in July for the purpose of improving conditions in the industry through organized effort. Formation of the association followed a meeting July 18 at which Jacob Widder, chairman of the ways and means committee of the Broadsilk Division of the Silk Association of America, spoke. A committee was formed to make plans for the development of an organization structure.

•

Widespread Increase in Mill Activity

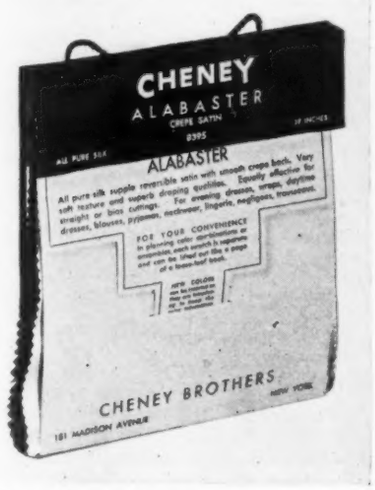
THE Industrial Bureau of the Allentown (Pa.) Chamber of Commerce announced at the end of July that employment in silk mills in that district had taken a healthy spurt, thanks to increased demand for fabrics. Virtually all mills were stated to be in operation.

This report is in line with reports from other silk mill districts, notably Connecticut, Rhode Island, and Virginia, where there has been a decided increase in operations as result of better demand for fabrics.

•

Credit Group Creates Fraud Fund

AN emergency fraud fund for investigation and prosecution of commercial fraud has been underwritten by the Uptown Credit Group of the Textile Industry, affiliated with the Silk Association. Fund will continue one year, the work to be carried on by the fraud prevention department of the National Association of Credit Men. Fraudulent bankruptcies, prosecution of persons concealing assets, issuing false financial statements and other fraud comes in the scope of the inquiry. The Uptown Credit Group thus resumes an activity started in 1924, and later given over to the national credit body for cooperative action, which the latter discontinued.



New Cheney swatch book with protective cover

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Silk Price Tables

THE following are prices of key items in the silk industry. First-of-the-month are given with comparisons covering a month ago, a year ago and two years ago. By Aug. 10 Crack XX 78% had risen to $1.57½:

	Aug. 1	July 1	July 1 1931	July 1 1930
Crack XX 13/15 white 78%.....	$1.45	$1.24	$2.55	$3.50
Tram, 5 thd Japan 85%	2.15	2.00	3.65	4.25
Crepe 3-4thd 14/16 Bob	1.85	1.70	2.65	2.70
60s-2, spun silk.....	2.85	2.75	3.45	4.00

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Stehli Increases Wages at Lancaster

A 10% pay increase affecting about 1,200 workers was announced Aug. 2 by Alfred Snavely, general manager of the Stehli Silk Corp., Lancaster, Pa., effective immediately. He explained increased orders made possible this advance in wages.

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Kramer Heads Belding-Corticelli

COMPLETION of the merger of the Corticelli Silk Co. with Belding Heminway Co., plans for which were announced in July TEXTILE WORLD was made known July 18 by Raymond C. Kramer, president of the Belding organization. The company which will be centralized in New York and will be known as Belding-Heminway-Corticelli Co., is headed by Mr. Kramer, as president; other officers will be J. P. T. Armstrong, president of Corticelli, who will have an important post; C. M. Butler, secretary-treasurer, and J. S. Lipser, general sales manager.

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Silk Mill News

ARMSTRONG SILK CORP., New London, Conn., newly organized for rayon fabric manufacture, went into production July 19, with a staff of 100 operators. Location is in Union Street plant formerly worked by Corticelli Silk Co. Thomas P. Congdon, former Corticelli superintendent is manager, and J. P. T. Armstrong will serve in an advisory capacity.

BELDING-HEMINWAY-CORTICELLI CO., Putnam, Conn., has completed concentration of operations at Putnam. Mills in New London, Conn., and Florence, Leeds and Haydenville, Mass., have been closed.

DUSTIN PILE FABRIC CO., Central Falls, R. I., has filed a voluntary petition in bankruptcy, showing liabilities of $59,041 and assets of $6,578.

WARLICK MFG. CO., Newton, N. C., a rayon and silk weaving concern, has been placed in the hands of John H. Cilley, Jr., permanent receiver. Friendly action for a receivership was instituted by Mrs. Kate W. Cilley for the purpose of "preserving the concern and protecting the creditors."

THE WORCESTER (MASS.) SILK MILLS CORP. which is in receivership, will settle 15% of claims for $220,000 by terms of a compromise presented by Referee in Bankruptcy Daniel W. Lincoln for approval.

VIRGINIA TEXTILE CORP., Lynchburg, Va., which has been operating for the last five years in a leased building, has purchased the property and recently announced plans for expansion program.

R. K. LAROS SILK CO., Bethlehem, Pa., purchased the idle mill in that city of the C. K. Eagle Co., opposite the Laros mill, and as soon as changes are made in equipment will place 300 people in the plant. The tract is 500x500 feet and the building 300x180 feet.

THE JOHNSON SILK MILLS, INC., Lexington, N. C., organized a few years ago by local interests, and sold later to the E. S. Johnson interests of New York City, will start again. It will operate under local auspices, with J. T. Hedrick, Lexington capitalist and manufacturer, as president, W. F. Sparger, secretary, and E. D. Malet, now of Pawtucket, R. I., as superintendent.

TEXTILE WORLD'S

Rayon Digest

IN ALL discussions of the synthetic fiber situation, one thought —whether spoken or unspoken—enters in: the possibility of mergers.

Reports of combinations in the making have been current for months. Some have been founded on fact, others on fiction. Some of those in the first class are now defunct; others are undoubtedly still under consideration.

We are not interested in the progress of any one move, or set of moves, in this direction. We *are,* however, interested in the potential effect of consolidation upon the market.

Few in number though rayon producers are, the difficulty of any effective cooperation among them has been demonstrated. Unless such cooperation is forthcoming shortly, there would seem to be only two alternatives: mergers or disaster.

Despite the improved demand recently the situation, particularly as regards relation of cost to selling price, is so bad as to cry out for some such solution as consolidation.—*Editor.*

Increased Activity Noted at Plants

THE start of August brought a very general tendency among rayon plants to increase operating activity. While the utmost caution was observed regarding quantity of output, producers believe that surplus stocks have been reduced sufficiently to justify a mild acceleration of production. Sales tone was better at the end of July, which also contributed to this decision.

Perhaps the major factor, however, was the growing emphasis being placed on the new dull luster viscose process yarns for fall; these yarns, numerous of which have made their appearance in recent months, are being well received because of the fashion importance of dull-luster fabrics for the coming season. Some firms report considerable advance business, both on standard lines and the new dull luster.

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Profitless Sales Revive Merger Talk

PRESENT profitless prices of yarn have received discussion in the rayon industry as to the possibilities of consolidation of companies. Rayon executives who comment on the point take widely divergent views as to the most likely line-up in such a merger, but the belief that financial pressure may lead numerous companies toward such action is growing steadily. The present condition is recognized as critical and the difficult problems facing individual companies have been evident in financial reports during recent months. The prevailing thought is that any such merger, if effected, would most likely bring together a group of companies holding second and third rank in volume, their combined organizations representing a unit which would rival the Viscose Co., which is the largest producer, or the DuPont Rayon Co., which holds second place. Numerous commentators state frankly that they believe stockholders may use pressure to effect such consolidation.

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Census Report on 1931 Rayon Production

TOTAL 1931 production of rayon in the United States according to biennial census just released, was 150,509,654 lb. valued at $112,433,660. The census covers 32 establishments employing 38,732 wage earners. Since the 1929 report, production had increased 29% in volume but declined 20% in value.

•

Paris Highlights Rayon Table Linen

TABLE linen of rayon is receiving special attention in the displays of the Paris department stores, reports the Paris office of the Du Pont Style Service. The new sets are simple, but original and delicate in shade. Most have a damasse design, usually in one color, simply obtained by dull and bright effects. The smartest sets show a wide band of damasse in a satin-like appearance. All pastel shades are in evidence.

Another sort of table linen favored consists of cross-stitched designs in bright-colored washable rayon over plain white or ecru backgrounds. The designs follow the purpose for which the linen is intended, being decorated with boats, sea-scapes, fauna or flora.

•

Underwear Promotion to Stress Dull Luster

THE fall lines of Acele underthings for women will include offerings by some leading manufacturers of knit undergarments, including Beder & Beder, Inc., Bethlehem Textile Co., Gluvtex Mfg. Corp., Helena Underwear Co., Royal Undergarment Co., Inc., and M. S. Siegel & Co., Inc. Lines include vests, slips, panties and bandeaux. Special retail promotions have been arranged which events will stress the dullness of yarn and fabric. Materials used in these garments are flat knit tricot and milanese and are produced by Kraemer Hosiery Co.

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New Hosiery Popular

HANES ASSOCIATED MILLS reports increased demand for the new Shardo-Crepe seamless stocking made from Tubize Chatillon Chardonize yarn. This spiral knit stocking has excited widespread interest among leading retailers in the New York area, and is selling actively at prices up to 39c. retail. It has been promoted by numerous distributors who ordinarily are adverse to synthetic yarn hosiery. Shardo-Crepe is a mesh-knit and the stitch won such quick acceptance that this month several hosiery manufacturers were reported to be offering similar hosiery in silk.

•

Glanzstoff Urges Harmony

INTERNATIONAL agreements similar to the Rayon Sales Bureau are an essential preliminary to any improvement in the European rayon situation, according to a statement in the annual report of Vereinigte Glanzstoff-Fabriken, A. G., Berlin. The report regards the general situation of business as favorable, despite a loss of 1,900,000 marks for 1931.

•

French Output Declines

FRENCH production of rayon declined from approximately 23,000 metric tons in 1930 to 21,000 tons in 1931, according to estimates made by the Syndicat Francais des Textiles Artificiels, and reported to the U. S. Department of Commerce by Consul

Hugh S. Fullerton Lyon. (A metric ton is 2,240.6 lb.) The 1931 output comprised about 18,500 metric tons of viscose rayon, 1,500 tons made by the cellulose acetate process, and about 1,500 tons of other types. In 1931 French exports of rayon totaled 8,942 metric tons and imports amounted to 1,259 tons, as compared with 8,029 tons and 1,095 tons, respectively, in the preceding year.

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Bemberg Enters Staple Fiber Field

BY grouping some large-sized spinnerets, American Bemberg Corp. has succeeded in producing a large strand of untwisted filaments which, when shipped to Nyanza Mills, Woonsocket, R. I., can be cut into short staple of a character suitable for spinning on cotton equipment. Nyanza, as a result, is putting on the market some plain, crepe, and novelty spun-fiber yarns known as "Sunspun," of a fineness, uniformity, strength and subdued luster which promise soft and rich armures, matelassés, ratinés, cote-de-chavals, and other fabrics of wool-like and attractive appearance ranging from lightweight dress goods to thick coating materials.

Sunspun yarns of 70/2, 50/2, and 30/3 counts have already been shipped to important silk mills for experimental purposes, and are available to others who may wish to try them. Several fabrics developed by Bemberg's fabric technicians are on display at the New York offices of the company, and two of them are illustrated herewith. Fig. 1 is a leno weave employing 1230 total ends of 30/3 Sunspun in a reed width of 41 in. exclusive of selvages. The filling is of the same yarn. The fabric counts 30x28 and was woven on ten shafts. Fig. 2 is an all-Bemberg matelassé of the following construction: 90x88; 30/3/1; reed width 51 in. to finish 38 in.; warp, 70/2 Sunspun; filling, alternating two picks of 50/2 Sunspun and two picks of 100-denier Bemberg crepe, 60/65 turns one way; chevron weave on twelve shafts.

Nyanza has developed its own cutting machinery, which is capable of adjustment for a range of staple lengths. Later it is expected that Bemberg will do its own cutting. The staple in the fabrics on exhibition appears to be about $1\frac{5}{8}$ in. No attempts have been made thus far to mix Bemberg raw staple with other fibers.

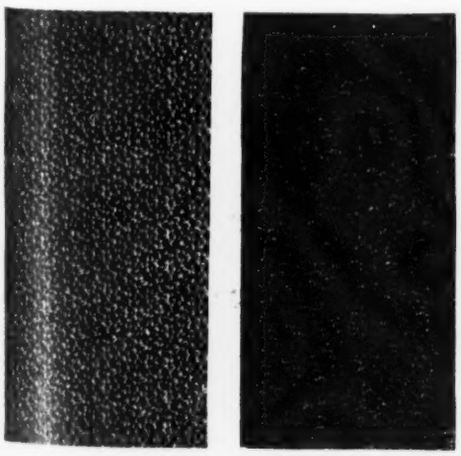

Fig. 1 (left) Leno fabric made of Sunspun yarn. Fig. 2 (right) Chevron matelassé of Sunspun

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Organon Optimistic

THE rayon outlook as regards demand has considerably improved, states the current issue of *The Textile Organon*, published by Tubize Chatillon Corp.

This publication comments: "If the weavers will hold to their policy of producing against orders only, and if knitters would follow this example more closely, the requisites for a sellers' market this fall are present today."

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July Premier Review Out

MELVIN A. TRAYLOR, Chicago financier, and one of the candidates for the Presidential nomination at the Democratic National Convention in June, is chief contributor to the July issue of *Premier Rayon Review*, published by Industrial Rayon Corp. Mr. Traylor analyzes current government problems and says many of these difficulties—particularly the tax issue—are due to the indifferent public attitude toward national affairs.

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Rayon Price Comparisons

THE following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

Viscose Process	Aug. 1	July 1	Aug. 1 1931	Aug. 1 1930
75 denier (18-30 fils)..	$0.80	$0.80	$1.35	$1.65
100 denier (40 fils).....	0.65	0.65	1.10	1.30
150 denier (40 fils).....	0.55	0.55	0.75	1.00
Acetate Process				
150 denier.....	0.75	0.95	1.85	1.85
Cupra. Process				
150 denier (112 fils.)...	0.80	0.80	1.10	.....
Nitro. Process				
150 denier (60 fils.)....	0.62	0.62	0.75	.95

Yarn Imports Gain

BELOW are the figures on imports of rayon and other synthetic fibers as announced for June by the Bureau of Foreign and Domestic Commerce. For comparison, it might be mentioned that in May yarn imports totaled 16,690 lb., value $10,876; waste imports, 962 lb., value $126, and cut or staple fiber imports totaled 29,825 lb., value $8,160.

June figures follow:

Yarns	Pounds	Dollars
France	5,441	4,091
Italy	22,917	10,985
	28,358	15,076
Spun Yarn and Thread		
France	11	9
Switzerland	265	268
United Kingdom	20	49
Japan	2	3
	298	329
Filaments, including artificial horsehair		
Canada	3,279	230
Cut or Staple Fiber		
Germany	11,505	3,082
Switzerland	11,230	3,151
	22,735	6,233

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Rayon Mill News

THE ACME RAYON CORP. reports an operating loss of $41,330 for the year ended Dec. 31, 1931, before depreciation, against an operating profit of $62,391 for 1930. The operating loss for 1931 was raised to $79,448 by the addition of $38,118 depreciation charge. The 1931 total deficit compares with a total deficit of $10,120 in 1930 and a profit of $72,689 in 1929. The dollar sales for 1931 totaled $340,218.

THE VISCOSE CORP. of Virginia increased operation of its plant at Roanoke, Va., on Aug. 9, when another 10% of the force of 4,500 employes returned to work, it has been announced by H. C. Neren, manager. Four hundred employes returned to work July 18.

BELAMOSE CORP. financial report for the year ended Dec. 31, 1931, showed a net loss, after depreciation and taxes, of $119,789 as against a net loss of $120,293 in the preceding 12 months. No dividends were paid in 1931 against $6,648 in 1930.

COURTAULDS (CANADA) LTD., Cornwall, Ont., announce that the present price guarantee extends to the middle of August.

TEXTILE WORLD'S

Knit Goods Digest

STEADILY and effectively the program of the National Association of Hosiery and Underwear Manufacturers as outlined by Earl Constantine, managing director, is developing.

Two important and related parts of that program are the deliberations of the newly appointed Advisory Council and the plans for the "executives-only" conference in the fall. The Council comprises a representative group of key men from all branches of the industry and related trades. Out of the deliberations of such a group, there cannot fail to come real contribution to constructive thinking within the industry. The statement made following the first meeting, noted elsewhere on this page, demonstrates this fact.

Participation, on the part of all hosiery and underwear manufacturers, in the application of this thinking, and in the fall conference itself, will insure progress toward stabilization in this branch of textile production.—*Editor.*

Advisory Council Moves For Hosiery Stability

IMPORTANT preliminary steps were taken during recent weeks toward the general convention of top executives in the hosiery and underwear industry, which the National Association of Hosiery and Underwear Manufacturers plans to hold in October. William Meyer, president of the association, announced July 13, the appointment of an Advisory Council, comprising 42 outstanding leaders in the hosiery-underwear and related industries. Although practically all those nominated were men of multiple activities, they accepted office without a single dissent. The first meeting of the council was held at the Waldorf-Astoria Hotel, New York, July 21, when the members spent a crowded day analyzing the major problems facing the industry and outlining their scope of attack. John Wyckoff Mettler, president, Interwoven Stocking Co., and former president of the association, served as chairman. The main aim of the session was to air views of members.

While details of the meeting were not disclosed, the session being executive, it was clear from a statement subsequently issued by the council that wage levels were receiving careful attention. In the statement further salary and wage cuts were opposed as "unwarranted and socially undesirable."

The council will meet frequently during the next few weeks with the aim of shaping a complete and concrete program for action at the October convention to be held in New York.

The program of the association in this regard is viewed as one of the most significant movements of late years in the knit goods field; the importance of the project may be gauged by the unusual high calibre of the council membership which comprises the following:

Gustave C. Aberle, H. C. Aberle Co.; J. H. Adams, Adams-Millis Corp.; C. H. Bacon, Chas. H. Bacon Co.; John Bromley, Quaker Hosiery Co.; J. Ebert Butterworth, H. W. Butterworth & Co.; Charles Chipman, Charles Chipman Sons Co.; Jos. Davenport, Davenport Hosiery Mills; Geo. F. Dickson, Minneapolis Knitting Works, W. W. Freschl, Holeproof Hosiery Co.; C. W. Gaddy, Wiscassett Mills; Paolino Gerli, E. Gerli & Co.; Grover C. Good, Globe Knitting Works; W. H. Gosch, Nolde and Horst, B. H. Guenther, Merrill Hosiery Co.; James G. Hanes, Hanes Hosiery Mills Co.; Oscar Heineman, Oscar Heineman & Co.; Louis Hirsch, Louis Hirsch Textile Machines; Alfred Hofmann, Albert Hofmann, Inc.; J. P. Holt, Aberfoyle Mfg. Co.; Kenneth Howie, Wildman Manufacturing Co.; G. W. Hundley, Golden Belt Mfg. Co.; Henry Janssen, Textile Machine Works; Louis Kahn, Kahn & Feldman, R. N. Kimball, Allen-A Co.; John L. Lawson, Hemphill Co.; J. P. Margeson, Phoenix Hosiery Co.; W. H. McLellan, Alden Mills; John Wyckoff Mettler, Interwoven Stocking Co.; Henry Pope, Sr., Bear Brand Hosiery Co.; George E. Rutledge, Munsingwear Corp.; Samuel A. Salvage, Viscose Co.; Rufus W. Scott, Tubize Chatillon Corp.; R. W. Sulloway, Sulloway Mills; Harry Swinglehurst, Scott & Williams; Ferdinand Thun, Berkshire Knitting Mills; Roy E. Tilles, Gotham Silk Hosiery Co.; M. G. Van Arsdale, Van Raalte Co. Inc.; H. L. Van Praag, Julius Kayser & Co.; J. K. Voehringer, Jr., Mock, Judson, Voehringer, Inc.; J. P. Voorhees, J. P. Voorhees & Sons, Inc.; F. A. Williams, Cannon Mills, and Clyde Wilkins, Champion Knitting Mills.

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States Bottom Reached

NOLDE & HORST CO., through its vice-president, William H. Gosch, has announced a new price list on women's full-fashioned hosiery which represents the lowest quotations put out by the firm in its 40 years of existence. Mr. Gosch stated that it is the opinion of his concern that the bottom has now been reached, pointing out that buyers desire better merchandise, that wages are below pre-war figures and cannot be reduced further, that raw silk is selling at one-third pre-war prices, and that manufacturers are beginning to realize that they cannot continue to sell at a loss.

•

Non-Run Hosiery Shown at Berkshire Clinic

NON-RUN hosiery, made in accordance with the Schwartz patents, was the principal item of interest at the semi-annual fashion clinic of the Berkshire Knitting Mills, Reading, Pa., which was attended by over 300 merchandisers and buyers. The hosiery has also been shown by Apex and Schuylkill Valley; it is to retail at $1.35.

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"Interference" on Non-Run Patents

THE United States Patent Office on July 19 declared an interference between certain claims of the Graenz Patents Nos. 1856053 and 1862514 and of the Schwartz Patent No. 1470490. According to patent office procedure the only point at issue in an interference is priority. The patents, which involve non-run hosiery, were described in TEXTILE WORLD for June.

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Third Non-Run Patent

ALREADY confused and somewhat alarmed by impending introduction of non-run full-fashioned hosiery as promised by Schwartz and Graenz patents, hosiery trade is further bewildered by issuing of U. S. patent 1,866,713 to T. H. Jones, of Woodthorpe, and R. K. Mills, of Sherwood, England, for "ladder-proof or ladder-resisting" circular, latch-needle, filling-knit, full-fashioned stocking or garment. This is a strange and perplexing combination of familiar terms—and the patent makes interesting reading.

The non-run story runs on. Dexdale Hosiery Mills, Lansdale, Pa., refers to prior German art, doubts validity of existing patents, and announces work on non-run hosiery closely resembling plain-stitch stockings.

•

Arbitration of Hosiery Strike Successful

"LABOR disputes like this you are having in High Point have never ended in anything but tragedy; tragedy for the workers; tragedy for the community—for everybody. A strike like this is nothing but war, and war is insanity," declared Governor O. Max

Gardner, of North Carolina, in pleading with the committee representing 6,000 hosiery workers on strike at High Point, N. C. His efforts toward conciliation were successful and the strike, which began July 18 when 400 workers in eight plants walked out in protest against wage reductions, was officially ended Aug. 1. The agreement arranged by arbitrators placed the new level of wages on a basis of $2.10 per 100 doz. for boarding, provided that workers in the seamless mills return to their places on the wage basis in effect before the reduction on July 11.

It was agreed that a survey of wages in other hosiery manufacturing centers would be made and, if High Point wages were found to be below levels in other competitive centers, that further upward adjustments would be put into effect. The average scale in High Point prior to April 1 was $2.25 per 100 doz. for boarding, as compared with $1.50 in a few plants at the time of the strike, and it is apparent that the compromise basis of $2.10 represents a partial victory at least for the strikers.

The strike in full-fashioned hosiery mills has also been settled.

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Underwear Price Advance Foreseen

THE growing belief that heavyweight underwear prices would be advanced toward the end of this month, served to stimulate buying during recent weeks. These lines, which had been withdrawn from sale on April 23, were reinstated on July 15, but with the stipulation that prices would be withdrawn again on Aug. 20, which was generally interpreted as presaging an advance.

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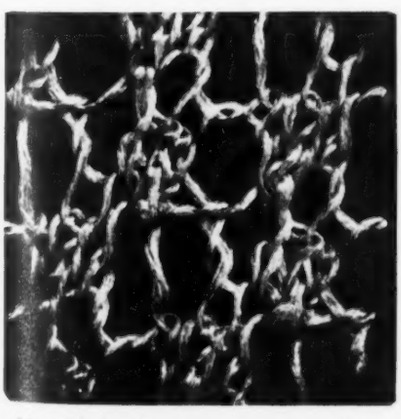
New Knitwear Body

THE Knitwear Association of America, Inc., a cooperative organization of knit goods manufacturers, has filed incorporation papers with the Department of State, Albany, N. Y. The headquarters address is given as 507 Fifth avenue, New York. Directors and incorporators are: Charles J. Johnson, of New York, and Karl Bischoff, Louis Bader, Elmer H. Hammersley, Michael Haug, George Mohr and Harry Goldman, all of Brooklyn, N. Y. Incorporation papers state that the aim of the organization is to achieve united effort in bettering knitwear industry conditions, adjust differences and improve working conditions.



Magnified view of a run-resistant stocking offered by Brown-Durrell Co.

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Spring Outerwear Showings Nov. 14-16

AT A JOINT meeting of the representatives of the National Knitted Outerwear Association and the Knitted Outerwear Selling Agents Group, held on Aug. 8, it was decided that an official opening of the spring lines of all knitted outerwear for the jobbing trade would be held on Nov. 14, 15 and 16. As in previous years, the exhibition will be held in Chicago.

This decision was reached after a consensus of opinion was obtained of the membership of both associations. While there proved to be a wide diversity of opinion as to the most appropriate date for the opening, most of the replies to the questionnaire sent out, stated that the middle of November was most suitable, and the resolution of those in attendance at this meeting was in accordance therewith.

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Knitting Mill News

DURHAM (N. C.) HOSIERY MILLS, INC., and subsidiaries, reported net income, after interest and other charges, of $41,280 for the six months ended June 30, equal to $1.26 a share on the 32,738 preferred shares outstanding. This represents a substantial increase over the earnings for the corresponding period last year when net was $20,705, or 63c. per share.

VARINA (N. C.) KNITTING MILLS suffered a fire on July 30 which completely destroyed the building, together with its contents of machinery, manufactured products and supplies of raw material. Several thousand dollars worth of new machinery had just been received at the building and was uninsured. Total loss is estimated at $25,000 to $30,000.

FORT PAYNE (Ala.) HOSIERY MILL, a new unit, is now practically completed, and the company hopes to begin hosiery manufacture Aug. 15. At start of operations 40 workers will be employed. Among those backing the enterprise are: W. H. Cobble and W. D. Gilbreath, of Fort Payne, J. H. Gilbreath, of Collinsville, and W. M. Gilbreath, of Oneonta.

BELLE-TERRE HOSIERY CO., Reading, Pa., has recently been consolidated with the FAIRY SILK MILLS, Shillington, Pa.

LEHIGH SILK HOSIERY MILLS, Philadelphia, has been placed in hands of an equity receiver to conserve its assets. James S. Rankin is the receiver.

WALTER FRED HOSIERY MILLS, INC., Nashville, Tenn., are installing six 24-section. Theodore Lieberknecht, 51-gage hosiery machines equipped with full lace attachments.

ROLLINS HOSIERY MILLS reports a loss of $103,919 after taxes and charges for the six months ended June 18. This compares with a net profit of $73,237 in the same period last year.

COOSA TEXTILE CO., Anniston, Ala., has been formed by Andrew Stoltz, formerly with the Lengel-Fencil Co., of Anniston, and associates, and will begin operations shortly in the Britton Building with about 30 new seamless knitting machines. Dyeing and finishing equipment will be installed.

REAL SILK HOSIERY MILLS, INC., Dalton, Ga., are moving their dyeing and finishing departments to Indianapolis, Ind., as an economy measure. About 130 operatives are involved by the transfer.

AUGUSTA KNITTING MILLS, Utica, N. Y., will be liquidated according to plans formed in the middle of July, following a meeting of Augusta officers with some of their chief creditors. An advisory committee was appointed to effect a gradual and satisfactory liquidation of the business, and negotiations were declared to be under way looking to sale of some of the firm's more important trademarks and brands. The committee comprises: Rodney Wilcox Jones, president of Augusta, Harry R. Upright, of Harry R. Upright & Associates, representing creditors, and Edward Morris, vice-president of the First Citizens Bank & Trust Co. of Utica.

KNIT GOODS IN THIS ISSUE

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TEXTILE WORLD'S

Processing Digest

ANNOUNCEMENT that the United Piece Dye Works, until legislation can be obtained to assist in protecting original designs, "will accept any designs for engraving and printing, regardless of their origin," is vitally significant.

The silk industry, by and large, has followed the policy of copying printed designs; converters for the most part have insisted that silk printers accept any and all designs submitted to them; the printers, with some exceptions, have acceded to these demands. On the basis of this reasoning, the U. P. D. W., which has been one of those who have tried to combat this movement, now feels it incumbent, for its own protection, to let down the bars. Consequently, for the immediate future, rampant piracy of silk designs can be expected.

However, since this action serves to focus attention upon the the need for early passage of a design copyright bill, and for unanimous agreement among silk printers to refuse to accept other than original designs, it represents a constructive and courageous step. Although indications of such unity of action are not at present apparent, it seems unthinkable that they will not develop shortly.—*Editor.*

New Pre-Shrunk Finish Developed at North Carolina Finishing Co.

EXPERIMENTAL work at North Carolina Finishing Co., Inc., covering a period of more than two years has resulted in the development of a new finishing process for the production of pre-shrunk fabrics. The method, which was devised by Julian Robertson, general manager of the company, is intended primarily for the finishing and preshrinking of the better grades of shirtings and underwear cloths, particularly those which have been mercerized and bleached or dyed. As yet the process has not been applied to very heavy fabrics or to unbleached materials. The methods employed in the new process are protected by U. S. Patent 1,864,373.

Mr. Robertson states that the process was developed to fill the demand for high-grade fabrics pre-shrunk in both warp and filling, and at the same time having a lustrous appearance and smooth, silky hand. He points out further that since all mechanical pulls and forces are avoided—the cloth being left free to contract of its own accord under the influence of steam, water and heat—overshrinking is impossible.

The method employed in producing the pre-shrunk finish is, briefly, as follows: The fabric after mercerizing, bleaching or dyeing, etc., is tentered to a width somewhat greater than the desired finished width, and is then calendered. The goods are then subjected to the action of a large amount of water and steam which are forced into the fabric under pressure, thereby causing a swelling of the yarns and, at the same time, a shrinkage of the fabric both lengthwise and crosswise. The cloth at this stage is usually over-shrunk fillingwise, and it is advisable to subject it to a transverse stretching treatment, such as can be obtained advantageously with a belt stretcher or short tenter and then dry and finish without tension on a Palmer finishing machine.

At this point in the process the material has been pre-shrunk to an appreciable extent and possesses a satisfactory appearance and hand for preshrunk goods. However, in order to obtain the maximum shrinkage and to enhance further the finish of the fabric, the goods are again subjected to the action of steam and water, which are sprayed into them under pressure and finally, while free from tension, are dried and ironed on a second Palmer finishing machine and wound on rolls. The material is now ready for marketing without further treatment.

The entire process can be carried out as one continuous operation. Or if desired, after calendering, the fabric may be wound on rolls and subjected later to the subsequent shrinking and finishing treatments.

No claim is made that the process will result in a so-called zero-shrunk fabric, as repeated launderings will cause a small amount of additional shrinkage. On the other hand, it is asserted that fabrics treated by this method are shrunk evenly and uniformly. It is emphasized further that since the small amount of shrinkage remaining in the finished fabric corresponds to less than half the change from one size garment to another, this can be allowed for without affecting adversely the fit of a new or laundered garment. The company is not planning to license the process to other finishing plants, but intends rather to retain it for the exclusive use, without royalty, of its regular customers.

•

Prosperity Co. Enters Fabric Shrinking Field

IN addition to the textile shrinking plant recently put into operation at Syracuse, N. Y., the Prosperity Co. plans to establish five additional units in strategic points in the South or East. Each plant will have a capacity of 250,000 yd. a week. In the Prosperity system, first demonstrated publicly some two years ago at the Textile Exposition in Boston, the fabric, after being wet out with water, is passed through a high-pressure steam press which removes all creases and wrinkles, gives both warpwise and fillingwise shrinkage without exerting tension, and produces a finish similar to that on shirts which have been laundered in power laundries. The company is well known in the textile industry as a manufacturer of equipment for pressing knit goods and other fabrics, and its venture into the textile processing field is being watched with interest. Present plans are to limit production to about 50 million yards a year, accept only fast-dyed fabrics for treatment, and to provide labels indicating that the goods have been pre-shrunk by this particular process.

•

Mosquito-Repellent Treatment for Hosiery

AMONG the newest of kinks in the hosiery dyeing field is a process for treating stockings with a mosquito-repelling chemical. Odorless to humans, obnoxious to *Culicidæ*, this chemical causes the pest to beat a bloodless retreat. Tested on the Jersey marshes, reputed headquarters of the mosquito family, and found sting preventive, mosquito-repellant hosiery is now being stocked by at least two retailers in the New York area.

•

New Detergent and Dispersing Agent

IGEPON T, a water-soluble detergent and dispersing agent brought out recently by General Dyestuff Corp., is staple in acid and alkaline, as well as neutral, solutions, thereby meeting requirements not satisfied by Igepon A,

the first member of the Igepon series. The new compound is recommended for use as an assistant in kier boiling; bleaching; dyeing of cotton, rayon, wool and mixed goods; designing and finishing; acid fulling; and for miscellaneous processes such as the removal of alum soaps from shower-proofed materials. It is not suitable, however, for use in mercerizing liquors. Other properties of Igepon T include its stability to metallic salts, power to disperse or dissolve lime soap, strong lathering qualities, and good leveling and cleansing action. In neutral solutions this detergent is not hydrolyzed; and therefore can be used with complete absence of alkali.

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Chemical Show

THE Fourteenth Exposition of Chemical Industries will be held in Grand Central Palace, New York, Feb. 27 to March 4, 1933. To date about 180 companies, representing over 40 American industries which are classified as chemical, have reserved space. Special groupings of exhibits are being made, such as general equipment, chemicals and chemical products, plastics, molded products, lacquers, laboratory equipment and supplies, precision instruments, containers and packaging, materials handling equipment, raw materials, natural resources, industrial opportunities and educational.

•

Finishing Activity

FIGURES released by the National Association of Finishers of Textile Fabrics show printing at 41% of normal average capacity during July as compared with 47% in June and 43% in July, 1931. White and dyed combined dropped from 35% in June to 32% in July, as compared with 51% in July, 1931. Data on blacks were: fast black, July, 13%, June, 8%, and July, 1931, 20%; logwood and sulphur black, July 21%, June 14%, July, 1931, 33%.

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Sulphonated-Oil Standard

THE U. S. Bureau of Standards has circulated to the industry for its acceptance the commercial standard for grading sulphonated oils which was adopted some six weeks ago by the general conference of manufacturers, distributors and users. This standard governs the definition, nomenclature, and analytical methods. It becomes effective under the certification plan on Sept. 1.

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New Dyestuffs

NEW dyestuffs announced recently by General Dyestuff Corp. are as follows:

Naphtol AS-GR, a new Naphtol, which in conjunction with Fast Blue BB Base or Salt, produces for the first time with this group of colors, shades of green of excellent fastness to rubbing, washing, soda, and boiling caustic; very good fastness to alkaline kier boiling; and good fastness to chlorine. The green shades obtained in light and medium depths can be discharged to a clear white.

Three Benzo Fast Copper Dyestuffs; namely, Benzo Fast Copper Red RL, Benzo Fast Copper Yellow RL, and Benzo Fast Copper Violet 3 RL. The shades obtained with these dyestuffs have very good fastness to light, very good fastness to water and perspiration, as well as, generally speaking, very good fastness to alkali, rubbing, and ironing. The Benzo Fast Copper Dyestuffs are recommended primarily for dyeing cotton and other vegetable fibers but are also of interest for discharge printing.

Indanthren Printing Brown B Suprafix, a vat color which is printed by the usual potash-Rongalite steaming process without previous reduction and without Dissolving Salt B. It yields rich chocolate-brown shades, not previously represented in the Indanthren range, of very good fastness to light, washing and chlorine. This dyestuff is suitable for producing color discharges on Naphtol AS dyeings and on dischargeable vat-dyed grounds.

Fastusol Brilliant Blue RL, a new homogeneous dyestuff, giving an exceptionally clear shade of very good fastness to light. It is recommended for dyeing cotton, linen, and other vegetable fibers; rayon; and silk; and for the production of compound shades. As its resistance to hot steam vulcanization is very good, it is also of interest in the vulcanizing industry. A feature of Fastusol Brilliant Blue RL is that it may be used with advantage for the dyeing of rayon which has a tendency to barriness. Mixed fabrics of cotton and viscose are dyed tone-in-tone. In dyeing half-silk the silk is dyed more deeply in a glauber salt bath, the cotton more deeply in a glauber salt and soap bath. By adding Katanol WL to the glauber salt and soap bath, the silk is left practically white. Acetate effects in cotton piece goods remain white. In silk fabrics, acetate effects remain sufficiently clear for most purposes.

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Processing Plant News

APPOINTMENT of Paul Stevens as receiver for Carolina Dyeing & Winding Co., Mount Holly, N. C., was made permanent on July 12. The plant will continue operation on a normal basis, and it is expected that a reorganization of the company will be effected.

A. M. SMYRE MFG. CO., Gastonia, N. C., is erecting a modern building, costing between $10,000 and $15,000, which will house thread finishing machinery. It is reported that the new building will be leased to outside interests not connected with the company.

ARNOLD PRINT WORKS, North Adams, Mass. A committee representing holders of a substantial part of the Arnold first mortgage bonds, is acting to readjust the sinking fund provision of the mortgage.

NATIONAL FABRIC & FINISHING CO., Boston. Stockholders voted recently to reduce the capital surplus by $242,600 and to distribute this sum at the rate of $10 per share to holders of common stock.

UNION BLEACHERY, Greenville, S. C., is installing a third Sanforizing machine to satisfy the increasing demands of its customers for pre-shrunk fabrics.

LOUIS TERRY CORP., processors of rayon yarn, which moved plant from Chicago to Nicholasville, Ky., early this year and which was later placed in hands of co-receivers, has been petitioned into involutary bankruptcy. A meeting of creditors to act on a composition offer was held in Lexington, Ky., on Aug. 8.

CHATHAM PIECE DYE WORKS, Paterson, N. J., organized in 1929 and since petitioned into bankruptcy, held a final meeting of creditors on Aug. 10 to pass upon receiver's accounting and to declare first and final dividend.

HARTGENS SILK DYEING CO., INC., Paterson, N. J., has been organized with capital of 2500 shares no par value, to operate a local dye and finishing mill. The new company is headed by Diedrich Hartgens, 652 Blin Ave., Union City, N. J., and William Lehman, Westwood, N. J.

Textile World Analyst

JULY PROFIT POSSIBILITIES EXTREMELY SLIGHT

Although the textile industry gives strong indications of having passed the low point during May and June, there is still much to be desired in the way of activity. Based on total fiber consumption, general textile activity for the first seven months of 1932 was 21% less than for the first seven months of 1932 and 28% less than for the first seven months of a normal year. In determining a normal year, month by month consumption figures for the period 1924-1931 were averaged.

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COUPLED with the fact that textile mills operated at a low rate of activity during July, the further shrinkage in manufacturing margins left little, if any, room for profitable operation in the average plant. The only encouraging feature is that the end of the month saw a substantial volume of business placed, the last week's sales being estimated as the best in many months.

As compared with June, the manufacturing margin on a group of carded fabrics, representing the spread between clean cotton and selling prices on a poundage basis, declined almost ½c. per lb. during July. The extent of the decline in the amount received by the manufacturer to cover his costs (less cotton) is apparent in the following table:

Date	Margin in cents
July, 1931	15.3
Oct., 1931	12.3
Jan., 1932	12.1
April, 1932	13.9
May, 1932	11.0
June, 1932	9.5
July, 1932	9.1

Since consumption of cotton during June was the lowest since pre-war days, and July was not much better, it is unfortunate that the price structure has increased the difficulties of breaking even on short-time operation.

The situation in cotton yarns is somewhat better, manufacturing margin showing a gain during July over the very low figure of late June. Subtracting price of cotton, less waste, from the selling prices of a group of carded yarns left a margin of 9.65c. per lb. in July, as compared with 9.17c. for the last week of June. Other comparable margins were: April, 1932, 10.8c.; October, 1931, 12.7c. Combed yarns were also in a slightly better price position, although the manufacturing margin was still low as compared with the months previous to June. Spread between 60/2 C.P. warps and 1¼ in. cotton, less waste, has varied as follows:

Date	Margin in cents
July, 1931	24
April, 1932	24
May, 1932	24
June, 1932	21
July, 1932	21.4

The 5c. per lb. advance in mercerized yarns during the month is one of the bright spots.

The combed broadcloth margin during July was exactly the same as during May, the figure of 20.2c. being obtained by subtracting the cost of clean 1¼ in. cotton from the selling price of the cloth in the gray reduced to a poundage basis. Other comparable figures are: July, 1931, 26.8c.; January, 1932, 23.9c.

After lagging behind the lower price movement in raw wool and cloth, worsted yarn quotations showed a considerable drop during July and manufacturing margin narrowed drastically. Margin between clean wool and representative yarns stood at 53.5c. in July, as compared with 64c. in June, and 76c. in July, 1931. Cloth margins have shown some tendency to rise, although the situation is still unfortunate.

The TEXTILE WORLD index numbers point out what may well be a significant change in price movements. After touching an all-time low of 42 in June, the raw cotton index rebounded to 47 during July and the price trend was upward at the end of the month. The raw silk index remained steady at 25 and here again market conditions at the end of the month indicated a break in the long decline. Behavior of the raw wool index is also encouraging. Although the July figure stands at 59, as compared with 62 in June, most of the decline took place during the month of June and there was very little drop during July from the last week in June. Considering the rapid decline in the price of this commodity since last January, when the index stood at 94, recent behavior would indicate that the resistance point has been reached, particularly since consumption is turning upward.

Although the current improvement in the textile industry may have been overplayed by the general public newspapers, it is none the less apparent from the available data that the industry is on its way up on the basis of activity. Of particular importance to the industry itself, however, is an increase in manufacturing margins. Few mills can break even under present price conditions even though the rate of activity is stepped up considerably.

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Raw Silk Index: Date	Raw Silk
July 31, 1914	100	100	100	100	100	100	100	100	July 31, 1914	100
1925	193	193	193	177	221	226	222	234	1924-25 season	140
1926	146	159	161	152	189	195	199	210	1925-26	172
1927	130	146	153	147	179	184	186	195	1926-27	141
1928	160	162	163	166	218	201	198	197	1927-28	126
1929	158	163	156	168	182	184	193	198	1928-29	126
1930	114	131	127	147	131	143	164	190	1929-30	104
1931	75	97	99	121	102	114	134	165	1930-31	62
1932										
Jan.	53	78	74	102	94	104	127	147	May, 1932	28
April	49	75	73	98	83	98	121	133	...	...
June	42	66	63	94	62	76	110	116	June, 1932	25
July	47	68	62	96	59	72	101	116	July, 1932	25